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THE ACTING PRINCIPAL'S REPORT FOR 1950.*

It is a pity that our Diamond Jubilee should fall when Dr Boyd is on furlough, for his review, weighty in substance, but light in style, would have added dignity even to this occasion. But we can use the opportunity to glance back not only on the last year in College and on the sixty years of this Association, but also on Dr Boyd's twenty-five years as Professor and his thirteen years as Principal. Former students know something of his public activities. But those who work with him day by day know how much else he does, and how well; how seriously he takes his many responsibilities, and how lightly he carries them. However busy he is, Dr Boyd always finds time to make friends with his students one by one, to encourage all that is good in them, and to discourage all that isn't in quiet but effective ways that are peculiarly his own. And his colleagues always know where they are with him, how frank and fair he is, and how accessible. I doubt whether former students can quite realize how fortunate the College is in its present Principal.

EXAMINATIONS

Dr Boyd usually begins his reports, apologetically, with examination-results. He doesn't mention that this is one of the points at which he himself has brought about a big change. It is not difficult to improve examination-results. The student like other people prefers on the whole to avoid trouble, and you can easily make the consequences of not working more troublesome than work itself is. And you can stuff his mind, or a part of it, with the information that examiners delight in, so that at the examination his mind will discharge its total contents and remain empty, swept and garnished. Dr Boyd has never countenanced this unprincipled short-circuiting of University work, or fallen into the error defined by Sir Walter Raleigh as the confusing of a University examination with the Day of Judgement. He has improved our standards enormously. By trial and error he has built up a system of tests and penalties, including his popular Saturday-morning re-examinations. But he has relied more on personal influence, and he has gradually taught us that if a thing is worth doing it is worth doing well, and that play without work is as unsatisfying as work without play; and he has himself set an example both in work and in play, till we might almost take as our motto J. B. Priestley's prescription for Britain in war-time, 'Hard work and high jinks'. I think it is by honest work, helped on by whole-hearted play, that in 1950 we once more did well in the University examinations, and in some of them much better than ever before. Of forty-seven University prizes open to our students they won eight. For the Intermediate we sent up 199 candidates, of whom 168, or 87 per cent, passed completely, 90 of them, or 54 per cent, in the first class. In the Mathematics group the percentage of first classes is actually 82. For the B.Sc. 102 appeared, of whom 90 passed, two in the first class and 31 in the second. In the B.Sc. Honours all the 16 candidates passed,

*Read at the Diamond Jubilee Meeting of the College Day Association, 17th February 1951.

six in the first class, ten in the second, and none in the third. For the B.A. 68 appeared; 67 per cent passed in Part I, 88 per cent in Part II, and 72 per cent in Part III; and 53 per cent passed in all the three parts. In B.A. Honours, out of 54 candidates, ten passed in the first class, 31 in the second, and eleven in the third, and the remaining two were recommended for an ordinary degree. For the M.A., 32 appeared and 28 passed, two in the first class and 19 in the second.

As usual, our performance in the B.A. ordinary examination is disappointing, unless we can comfort ourselves by pointing out that the University average is far worse than ours. Science subjects are nowadays rated much higher by most of the many who don't think as well as by some of the few who do. It happens also that the B.A. is stiffer than the B.Sc. Science therefore attracts not only those who have a real inclination and aptitude for it, but also many who blindly follow the biggest crowd, and a few who only want to avoid doing a second language. Young men are gregarious-minded. And in Madras to-day a young man who is genuinely drawn by history or philosophy is made to feel ashamed of himself as if he were a secret drinker. A university cannot claim to be a complete university so long as it holds philosophy of little account. There are signs that the current may be already turning. This year there were some good students who made Arts subjects their first choice. And last term the students of philosophy in this College, the Women's Christian College, and Pachaiyappa's College—the only ones in Madras which keep philosophy as a degree subject—came together for a whole-day conference on their subject, on a holiday; and we in Tambaram were proud to be their hosts. And a B.A. Honours course in Psychology has been opened this year, in which the teaching and also the selection of candidates are shared by the University, Presidency College, and ourselves.

ADMISSIONS

The month of June brought down upon the Acting Principal and the Vice-Principal, Mr Macnicol, more than 3,000 students and their parents, with many relatives and Very Important Persons dragged in as auxiliaries, all fighting for about 600 places. The size of classes, especially the science classes, is now limited; the number of applications grows year by year. There are two large classes of applicants who have special claims on us, besides backward classes, refugees, and so on: new members of old College families, and students from our own school and other schools belonging to Contributing Societies. We could no longer satisfy all good claimants from either class, even if we turned away every one else. All we can aim at is to disappoint all our constituents equally; and judging by our correspondence at admissions-time, we succeeded. No personal claims are deliberately overlooked, though no doubt mistakes are sometimes made.

For a pleasanter word to be the last on the subject, I wish to pay tribute to the staff of the Principal's and Bursar's offices, from Mr T. P. John and Mr Sunder Raj down to and including the peons, for a great deal of extra work most carefully and willingly done at the time of admissions.

HALLS AND HOUSES

All this has brought me only to the beginning of the new year, on June 28, with 1225 students on our rolls—another record, but one we do not boast of. It is only in the History and Logic group of the Intermediate that we have deliberately enlarged any single class: our increased numbers over the last ten years are due to new classes being opened; and the new high total is due to an unforeseen flood in B.A. History and Economics. And we are able to cope with our large numbers the better because almost half of our students are resident, and because of our Hall system; so far as the social life of the staff and students are concerned we are not one college but three, all of them I think first grade. In a Hall even the littlest fish can feel that he counts for something. From our very first year at Tambaram most of our students have wanted residence; and a

great many have accepted admission without it, only because they assume optimistically that what they want so much will be theirs in a week or two. Our three Wardens have always been men with a hunted look, because of their waiting lists. We have always longed to increase, not our total number, but the proportion of residents. A fourth Hall would cost about ten lakhs, and we are not sure that we have the staff to man it fully; for of course all members of staff belong to one Hall or another, many of them playing a very active part in their life, and most of the unmarried ones living in them. But for years we have felt that it would be better for the first year students, except (say) those who are 30 years old or more, if they could have a corner of the Hall to themselves where they could measure themselves against one another and find their feet. And within the last week or two we have begun to build three annexes, one for each Hall, which will house 35 Intermediate students each, with one unmarried lecturer and one married lecturer and his family sharing the same roof. They are outside the Hall quadrangle, because there is no room inside; but they are only a few yards away from the main centre of life in the Hall, the dining room. The members of the House will eat, play, sing, and dance in the Hall, but they will work and sleep (in varying proportions) in the House, which will be a home of their own in which they can take counsel together as to how to conquer the world. We are hoping that the Houses may be finished soon after the new year opens.

Our Intermediate Houses will cost about one-and-a-half lakhs each, four-and-a-half lakhs altogether. And last November the Government of Madras very promptly granted our request that they should meet half the cost, up to a limit of two-and-a-quarter lakhs. The Honourable the Finance Minister is permanently in the predicament of a College Principal at admission-time, with too many people fighting for too few rupees. We are encouraged that he and his colleagues should help us on such a scale at such a time, and we can only promise that we will try to be worthy of their trust. We have to thank not only Mr Gopala Reddy, but also the Hon. the Minister for Education and Law, Mr D. S. Reddy, the Director of Public Instruction, and Mr Govindarajulu who was acting for the Director when our application was put forward.

STAFFING

I have spoken of accommodation for members of staff. Three years ago the expansion of the University seemed to reach a peak, and within a few weeks we lost thirteen members of staff, some to the Indian Administrative Service, and most of the rest to new or expanding colleges. I suppose we should be pleased that we are to some extent a training school for the national services and for Heads of Departments in other Colleges, but it was a bothersome time for the management. After that we seemed to settle down. But this year again we have given up seven lecturers or associate professors, two to the I.A.S., four to other colleges, and one to the Ramanujam Research Institute, while an Associate Professor has been borrowed for three years by the Government of India Defence Department. And I cannot repress the complaint that Government Departments, including I am sorry to say the Madras Educational Service, continue to recruit their staff without, so far as we can see, considering the interests of the colleges in which so many of them have been serving; after making them wait for months, or even a year, they order them to report in weeks, or even days. These sudden dislocations do much harm to a college; and it is difficult to believe that they are unavoidable. Government in this way spoil the training of their own future servants.

Many of these old friends have told me that they were sorry to go, and wouldn't have gone at all but that they needed more money. A teacher knows that teaching has its own rewards, for the right kind of man: the pursuit of knowledge for its own sake, the company of colleagues sharing a noble task who are experts in many subjects, and the daily companionship of the young. Students can be disappointing or

exasperating, especially perhaps to an Acting Principal; but with their awakening minds, their unspoilt feelings, and their great capacity for giving and receiving affection, they are after all the best company in the world. When I go home on furlough nowadays I feel at my arrival like Rip van Winkle: I find my contemporaries to be elderly men, and am astonished, for while I am in College I never think about my age at all. A teacher has great privileges, but it is not right that he should pay for them by having to worry about how to meet his own children's school-fees. The College itself can perhaps do a little, especially in providing some good houses at a low rent: one of the best things about the Intermediate Houses is that three more families won't have to worry about rent. But while expenses under every head keep mounting, our resources are limited. Under present conditions we can't expect any great increase from the Contributing Societies, which send us roughly half a lakh a year. We have increased our fees considerably, and they now bring in nearly 2½ lakhs; ten years ago the figure was something over one lakh. This is partly because of our larger enrolment; but the present payments average Rs. 194 a head, while the figure in 1940 was 142. Our total expenditure has risen from about 2½ lakhs in 1940 to about 3½ lakhs in 1950. And 1950 was a good year for Government grant, but what we received was still considerably under half a lakh. Several times over, in recent years, we have been able to make ends meet only by taking for current expenses the interest on capital funds intended for development and for reserve. There can be few educational institutions in Great Britain in which the contribution from public funds is less than one-seventh of the actual expenditure.

GAMES AND SPORTS

On the ordinary day-to-day life of our community, there is nothing outstanding to report, one way or another. The Halls went on their way with meetings, entertainments, games outdoor and indoor, each one quite sure that it was better in every way than the other two, which is as it should be. The Union Society invited various public men to address the students, organised oratorical competitions, played its part in the formation of the National Union of Students, and stimulated and harmonised the activities of nineteen other societies representing the fine arts, drama, and the subjects studied in college. Thanks partly to the friendly rivalry of the United States and United Kingdom Information Services, and partly to the equally keen rivalry of the latter service and the British Council, we have enjoyed a constant succession of sound-films and gramophone records. We have just acquired a film-strip projector. Each Hall has a radio, which sometimes works, and the National Cadet Corps thinks of spending an amenity-grant from the University on a fourth. We have bought five original paintings, four of them by an old student, Mr K. C. Sankara Panikkar, to adorn the library. There were no excursions apart from those for field-work in Zoology and Botany. In games we have had a curious record. There are ten inter-college tournaments. We finished third in three of them, second in six, and first so far in none: but the Sports are being decided at this very moment, and we are still hoping.* We competed for the first time in the Women's Inter-collegiate Tournament in Ring-tennis. To University teams we contributed two players of football, three of cricket, two of basket-ball, three of volley-ball, four boxers and three athletes in Track and Field Sports, including the University Captains in Boxing and Volley-ball. (This year there was no University hockey-team.) And we can now boast that an old student has played for India in cricket. It is true that Mr C. D. Gopinath is now studying in another college, but it was chiefly at Tambaram that he learnt the game he has played so promisingly at Kanpur. And a visitor to this College on any evening in the week would be left with no doubt that we believe in

* It was announced before the end of the meeting that the College had won the Sports.

games, especially if he penetrated to the obscure corners at the back of the Halls. The College contingent of the National Cadet Corps has shown great toughness in carrying on a good year's work though for four months it was left with two junior officers out of five. The Company soon recruited its maximum strength of 156. One officer and 40 cadets attended the cadre camp in September, and all the officers and practically all other ranks attended the Annual camp in December, returning with seven inter-company trophies out of thirteen, including the cup for general efficiency and the shield for platoon drill and guard-mounting. The Rural Service League, after a pause for stock-taking and planning, seems to gain strength steadily. It now concentrates its efforts on the weaving centre, the cloth being disposed of in bulk at a satisfactory price, and on welfare work in Old Tambaram village; the village school which it has re-founded there is now recognised and aided by the Department. It is hoped to start classes for adults during the Adult Literacy Week, which begins today. The student office-bearers, under the guidance and inspiration of Mr Chandran Devanesen, are keen and capable; the student body contribute to the expenses in a fairly satisfactory way, and rally round strongly at the time of the League's concert; but it could be wished that a larger number actually visited the village once a week. Our students played a large part in organizing the Madras Students' Social Service League, and the inaugural meeting was held after an all-day conference in this college. Lastly, our students seem often to win top points in AIR Quiz programmes.

THE SCHOOL

Since the College moved to Tambaram, it has been eighteen miles away from its School, but the College and School are still the same institution. During 1950, the distance was reduced by four miles, when the School re-opened in a new building in Chetput. Some old boys must be lamenting that the College now owns not a foot of land in George Town, but we may be proud to count ourselves the owners of one of the finest school-buildings in Madras, standing in ample grounds of its own, good to look at and good to work in. Great credit is due to Mr Kuruvila Jacob, who drove everyone tirelessly and looked to every detail himself. He showed that he could have become a first class architect, building-contractor, school-equipment-supplier, or caterer, if he had not been led by Providence to be a first-class Headmaster.

RELIGIOUS INSTRUCTION

There is one other subject on which I must speak : religious instruction ; a difficult subject even in countries where there is only one religion. The recent University Commission did not evade the difficulties, as some earlier commissions tried to do. It speaks frankly and clearly, and has forced everybody concerned to reconsider the question thoroughly. Dr Radhakrishnan and his colleagues recommend that all colleges, whether State-owned, State-aided, or independent, should be compelled to give compulsory religious instruction to all students —the same instruction being given to all. There is to be no dogma, they say : the best in all religions is to be combined : anything that might offend anybody's conscience may be excluded : till at last there is a new Universal Religion of Man which can inspire and unite all creeds and all races.

We must all sympathise with the peace-making intentions of the Commission, as we admire their outspokenness. And we agree that education without religion is like a spear without a spear-head. But all the same, I am sure that most of those who have actually taught religion would agree, first, that you can't do without dogma, because you must take up some attitude, conscious or unconscious, concealed or open, towards any statement of universal significance. Take the statement that 'God so loved the world, that he gave his only begotten Son'. Or take the statement made by the Radhakrishnan Commission, that 'no particular historical event is more important or significant than another.' You may believe such a statement. You may disbelieve it. Or you may reserve

judgement and keep an open mind, implying thus that the question doesn't matter now. You must do one or other of these three things, and whichever it is that you do, you are accepting, living by, and in some measure propagating a dogma, a statement about the reality of things. It is misleading to use the word dogma only for the dogmas you don't accept. The only thing an honest man can do is to examine himself and make up his mind what the dogmas are that he builds on and lives by. I am not saying by the way that we must be dogmatic, which is another sense of the word altogether. That may be called an objection in principle to the Radhakrishnan Report. There is also a practical objection. The religion which the Report would impose on all is 'that which is concerned with the beauty and mystery of the universe, the meaning of life and death, the aspirations of the inner soul, that sad feeling of the wistful-minded that beyond the world of positive knowledge there is a realm of forces unseen which we can feel but never know completely'. Some people are moved deeply by such language: but can you imagine the average professor, whether he be Hindu, Mussalman, Christian, or atheist, lecturing with those terms of reference day after day, week after week, not only so as to say nothing that any one could disagree with, but so as to keep his class awake? We think of the faiths that are fighting today, with all the weapons of modern propaganda, for the souls of the young: militant atheism, godless materialism, fascist communalism, imperialist communism; all of them with a war-cry and a promise of something to live for and if need be to die for. How can the mild voice of reason and humanism make itself heard amid the trumpets and the drums?

I have no prescription to offer for Government and other non-religious colleges. But surely it is better that where it is possible, men to whom religion is concrete and vital should be able to make clear to their students the fruits of their experience and the principles they live by. There need be no indoctrination, and no poaching, by bullying or by bribery. In this college we need not be ashamed of our objects or our methods. We cannot talk about the things that mean so much to us as if we didn't care what other people think of them. And as Christians we are bound to pray that all other men, and we ourselves, may daily come closer to Christ. But in the service of God short-cuts are out of place, and unfair methods are abhorrent. And a teacher has some regard for academic standards; he is not content to cram his students with ready-made conclusions, and he cannot suddenly adopt dogmatic methods or cheap appeals to emotion when his subject is religion instead of physics or history. He seeks the good of his pupils; he wants them to be spiritually free, and able to think and choose and judge for themselves. We teach what we believe as fully and clearly as we can, so as to help our students to find out for themselves what they believe. We hope profoundly that they and all others will be led to the foot of the Cross in God's good time; but we are not thinking of dialectical victories for ourselves, or of swelling our own community by hook or by crook. We believe that our religious teaching based on the Bible is the best of all the good things we offer.

THE NEW SCHOOL BUILDINGS

The new buildings of the College School, at Chetput were declared open by H.E. the Governor, the Maharaja of Bhavnagar, on Saturday, 21st October.

He and H.H. the Maharani were received on arrival by the headmaster Mr K. Kuruvila Jacob and conducted to the dais, which had been specially erected in front of the school buildings.

After the hymn 'O God, our help in ages past', Mr Kuruvila Jacob made a statement giving a brief history of school and college.

The Rt Rev. G. T. Selwyn, Bishop in Tinnevelly, read verses from Psalm 127, and Ephesians 2: 19-22, and led the gathering in prayer. The hymn 'Praise, my soul, the King of Heaven' was sung, and Mr. S. Govindarajulu, acting Director of Public Instruction, an old student of the college, made a statement, expressing his complete confidence in the work done by school and college.

The Rev. J. R. Macphail described himself as representing the daughter institution —the college—and invited His Excellency to declare the new buildings open.

His Excellency said: 'I have read the history of your school with some interest, and I have noted the steady progress it has made for more than 100 years, till it has achieved its present position as one of the leading schools of Madras.

'I would like to pay a tribute here to its early founders, who started this school in a small way as far back as 1835.

'We owe a very great debt to these Missionaries who were pioneers in the field of education, and I am glad to have this opportunity of acknowledging this debt publicly.'

He spoke appreciatively of the extra-curricular activities of the school, and of the qualities they develop. 'These qualities of independent thinking, of ability to argue one's case logically and clearly, of showing one's initiative and imagination instead of depending upon others, are all qualities to be encouraged.

'In declaring this new building open, may I plead with you to make your work and play, in your new surroundings, live up to your old traditions.'

His Excellency declared the buildings open amid applause.

Sir Mahomed Usman, President of the Old Boys' Association, proposed a vote of thanks. Jana Gana Mana was sung, and His Excellency and others were shown round the buildings by Mr Kuruvila Jacob and staff.

THE HEADMASTER'S STATEMENT

The purpose of our meeting today is not exactly to declare these buildings open, for they have been in daily use for over three months. When the school year began in June, the buildings were still far from complete, and there was much bustle and confusion. The masters and boys met together for a special act of worship, but it was not possible to arrange any public function. Now the builders' work is almost finished; we have completed one term of work here; and the beauty and convenience of our new home are becoming more apparent every day. It is fitting that we should now at least invite the friends of the school, and representatives of the Government and people of the State of Madras, to join with us in thanking God for his goodness, in dedicating the school, its teachers and pupils to His service, and in commending all to His guidance and protection.

As we look at these spacious and shapely buildings and the wide grounds that surround them, we remember humbly that many people had to work together in many ways in order that we should stand where we do today. Most of all we are in debt to the generations of dedicated men who gave

the best part of their lives to their work as teachers in this school, and in the College which grew out of it, throughout a century and fifteen years; and behind them the unnumbered hosts of ordinary men and women in many lands who helped by their prayers and sacrificial gifts. And we must not forget the past pupils and students of the School and College, who throughout these years down to today have shown much gratitude and loyalty to their Alma Mater. The old buildings in George Town may be changed outwardly as they pass to other uses, but the work that was done there has a place of its own in the history of Madras.

When, in the course of the years, it became clear that the School, like the College before it, must seek a larger, quieter and healthier site, we were helped in wonderful ways from many sources. It has proved to be a big undertaking. The cost is roughly as follows:—

	Rs.
The site (purchased in 1946)	2,50,000
The Napier Garden Building	1,20,000
The main building	5,50,000
The School Hall and Wood Work Room	1,00,000
Levelling, road-making, fencing	25,000
Furniture	40,000
Miscellaneous	20,000

The total is about Rs. 11 lakhs. The school has met most of the cost from its own resources. But the Government of Madras, besides giving wise advice and encouragement, have paid us in the course of the last four years grants-in-aid for play-grounds and the Napier Garden building, amounting to Rs. 1,40,000; and they have promised to give Rs. 35,000 for the School Building, and as much more for the School Hall and Wood Work Room. We realise that the present financial position of the State has made it difficult for the Government to give the usual half-grant, and we acknowledge what has been done with gratitude.

An Appeal Fund Committee consisting of former pupils, with Sir Mahomed Usman as Chairman and Sri K. Venkatarama Iyer as Secretary, has already contributed about Rs. 50,000. Some of these gifts are acknowledged on Donors' Boards in the School Hall, others in the School Magazine.

We must especially mention Sri George Joseph, Director of the Palai Central Bank, who was concerned with the purchase of the site and with the sale of the old buildings, and in both transactions helped the school greatly by his business ability and his personal generosity.

The honorary Building Committee, appointed by the College Council, consists of the Principal, Bursar, and Head Master *ex-officiis*, Mrs H. C. Buck, Mr Gladstone Abraham, Dr K. C. Chakko, and Mr F. T. Pithavadian. In the past we have also had the services of Mr Mathai Jacob and the late Mr R. W. Theobald. The School is greatly indebted to the members for their wise counsel at every stage.

We have been well served also by those who worked for us professionally. Our Architects, Messrs. Prynne Abbott & Davis (especially Mr J. R. Davis and Mr R. Kiffin Petersen) have thrown themselves into their very important work with a zeal which combined professional pride, artistic enthusiasm, and goodwill to the School. Messrs McKenzies, Limited, our General Contractors for the School Building, were our Contractors also for the College buildings at Tambaram. Their conscientious and skilful work is well known throughout India. Mr K. Subba Rao, their Chief Engineer, and Mr Krishnamurthy, his able assistant, have been specially considerate in all their dealings with us. Messrs Southern Constructions, Ltd, who were our General Contractors for the School Hall and other buildings, have also done excellent work. I must specially thank both these firms for their patience during the last three months, when their work and ours had to go on side by side. We wonld thank also Messrs General Electric Co. of India,

Limited for electric wiring, Messrs. King & Co. for water and sanitation and Messrs. Chitram & Co. for structural work.

I should mention also the devoted labours of Mr. Itty Eipe, the Clerk of Works, who brought with him much experience of similar work at Tambaram and in the Military Engineering Service.

We have to thank many Government Departments, especially the Education Department, who were always ready to help us in every way possible. It is a great tribute to them, as well as to the Architects and Contractors, that the buildings were ready to accommodate one thousand two hundred and fifty boys, less than ten months after the first sod was cut. We are deeply indebted to them all.

We trust you will have time to inspect the buildings. You will find that they are simple, well planned and modern in style and arrangement. The school is divided into four houses, each house having six forms and so there are twenty-four class-rooms, six on each floor of the two side wings. There are in addition a few class rooms of smaller size for special classes.

The windows and doors have been arranged facing North and South, an ideal arrangment for Madras. All the pupils are provided with individual tables and chairs, so that they can be taught in groups or as individuals.

The central block contains a well designed and equipped laboratory—a library so arranged that all boys have open access to the books and can therefore refer freely to the whole collection. A very fine and serviceable Lecture Hall is provided and equipped for audio-visual training, thereby making it easy for audio-visual aids to become a natural and normal feature of class teaching. There are two art rooms and one handicraft room for woodwork and allied subjects. The school hall built separately from the main block has a stage, well equipped, and always available for dramatic art and music.

The Hall also serves the purpose of a dining hall, for it has kitchens attached and a service counter for the sale of tiffin and other light refreshments.

A few figures regarding the building are of interest. The main building is 490 feet long. It has taken 13 lakhs of bricks to build the structure, together with 525 tons of cement and 90 tons of steel.

The building scheme is not complete. We still need a large hostel and staff quarters. Plans are ready for a hostel with two houses on the lines of English public schools, but we can proceed only when we can find more money. For this reason the Building Appeal Fund is being kept open for some more time.

So we have our new buildings, well-designed, soundly constructed, for which we thank God and all who have helped. As we now face the future, we ask you all to join with us in praying that the Madras Christian College School may be blessed by God so as to serve His glory and the good of all men.

Photographs between pages 74 and 75.

YEATS

A Talk Broadcast from Madras by REV. J. R. MACPHAIL *on January* 12, 1951

William Butler Yeats, who died in 1939, at the age of seventy-four, was Anglo-Irish. So were Swift, Congreve, Goldsmith, and Burke; and so, a century later, were Oscar Wilde and George Bernard Shaw. With all these writers, even Burke and Shaw, what they say matters less than the way they say it, which is clear, musical, and persuasive, so that we want to read on even if we don't quite know why. In other words, they had style, and that is what I have been asked to speak about.

In literary criticism the word style is often used in a special sense, for the way in which any writer deals with words, careful or careless, correct or incorrect, pleasant or unpleasant. In this sense every writer has a style, which may be good or bad, for his style is simply the manner of his writing. But there is also a more general meaning for the word. A man may play tennis or the violin, he may talk or write or do his work, whatever it may be, with style; not *a* style, but just style. I think we mean two things by this. First, what the man does is done in a masterly way, and it is all of a piece; he is competent in managing the different steps one by one, and he also has a thorough grasp of what he is doing as a whole. He sees the end from the beginning; he makes no false starts, and leaves no loose ends; there are no irrelevant flourishes, and no wasted efforts; the quality of his work is sound throughout, all that's needed is there, and everything else has been quietly cut out or left behind. You don't realize how good his achievement is till you look at it close and stop to think; and it seems easy, unless you try to do it yourself. One of the great sculptors said that he had trained himself, when a block of good marble was delivered to him, to consider that his statue was there already, flawless and complete; all he had to do was to cut away the surplus. When we say that a man does something with style, we mean that he knows where he's going, and goes straight there; he sees clearly what he means to do, and accomplishes his task with such directness that we can see it too, altogether and at once; there's no fuss, no beating about the bush, no balking, no manoeuvring for position. But we mean secondly, I think, that what he does is distinctive. He may seem to keep his eye steadily on the object he has set himself, and yet everything he does, from beginning to end, carries, so to speak, his own signature. He is simply doing what has to be done, no more and no less, and yet he does it in a way that marks him out and sets him apart among all the others who are doing the same thing. Style consists first in subduing the means used to the end aimed at, and secondly in being yourself, not an echo or copy of someone else.

Yeats wrote a good deal, poems lyrical, reflective, or narrative, plays, essays and criticism, autobiography; and he had affinities with many different literary groups, though he never belonged wholly to any of them. He grew up under the influence of Morris, the Rossettis, and Walter Pater. In the 1890's, in London, he worked along with Oscar Wilde and Whistler, adopting their slogan of Art for Art's Sake; to the end of his life he spelt Art, so to speak, with a capital A. Yet in 1898 Bernard Shaw hailed him as a 'genuine discovery' of the Ibsenite Independent Theatre. From the beginning he drew heavily on the folk-lore of ancient and medieval Ireland, when he wanted colourful trappings and 'a local habitation and a name' for his dreams and reveries. But about the end of the century

he returned to Dublin and helped to found the Abbey Theatre, along with Lady Gregory and John Millington Synge; where, by the way, he proved to be a hard-headed man of business. There, whether he wanted it or not, he was caught up into Irish politics, for through the first quarter of the century, in Dublin, everything was political, and there were riots even in the Abbey Theatre. One of his greatest poems is on the terrible battle in Dublin at Easter, 1916:

> I have met them at close of day
> Coming with vivid faces
> From counter or desk among grey
> Eighteenth-century houses.
> I have passed with a nod of the head
> Or polite meaningless words,
> Or have lingered awhile and said
> Polite meaningless words,
> And thought before I had done
> Of a mocking tale or a gibe
> To please a companion
> Around the fire at the club,
> Being certain that they and I
> But lived where motley is worn:
> All changed, changed utterly:
> A *terrible beauty* is born.

A little later he made his return to the Irish countryside, largely through staying with Lady Gregory at her beautiful and historic mansion at Coole Park; he bought for himself, and rebuilt, an old house with a tower and a winding stair, at Thoor Ballylee near by, and a great many of his later poems were written in and about it; he liked to sit late in his study at the top of his winding stair, with a medieval Japanese sword on his writing-table, surrounded by old tapestries and manuscripts, brooding on the follies of mankind, and wondering what wayfaring peasants thought when they saw the light of his candle. When Ireland became a republic he was made a Senator, and he took his duties seriously, or played his part with zest—you may describe it either way. But till well on in the twenties he had a house at Boar's Hill, near Oxford, where one of his neighbours was Robert Bridges; and the two poets, though so different, admired and learnt from one another. And by this time, though far beyond middle age, he was regarded as a master, and a master to be studied and followed, not only to be admired from a distance, by two generations at least of young English poets, the circle of T. S. Eliot, and the circle of W. H. Auden.

His range was never very wide, and it didn't develop greatly, except when he enlarged it to include Irish politics. He was able to absorb the occult, and Indian pantheism, and to make them look like his particular brand of Irish folk-lore. Yet he never repeated himself, and his style changed more than the style of any other English poet, except Shakespeare and Milton. The earlier poems are dreamy and wayward; he said in the first of his published poems 'Words alone are certain good', and he played with words, images, and figures of speech delightedly. Then in 'Responsibilities', published in 1914, he says:

> I made my song a coat
> Covered with embroideries
> Out of old mythologies
> From heel to throat;
> But the fools caught it,
> Wore it in the world's eyes
> As though they'd wrought it.
> Song, let them take it,
> For there's more enterprise
> In walking naked.

And his later verse is taut and spare and sinewy, packed with thought and pruned of all superfluous decoration.

The lines he wrote to be carved on a stone at Thoor Ballylee seem to me to be characteristic:

> I, the poet William Yeats,
> With old mill boards and sea-green
> slates,
> And smithy work from the Gort forge,
> Restored this tower for my wife
> George;
> And may these characters remain
> When all is ruin once again.

They portray a man intensely aware of himself, a mind that can deal with ideas

like a wrestler, and a heart that can respond to beauty ; and he seems to himself to stand up in the time he lives in, angry, proud, like a rock in a stormy sea. He speaks with devoted love of a few whom he admires, and there are beautiful references to his wife and son and daughter. But in the poem in which he says 'Words alone are certain good', he also says 'There is no truth saving in thine own heart'. As he thinks his own thoughts and dreams his own dreams, the world about him becomes shadowy and ruinous. He looks for excellence and reality, and doesn't often find it ; and when he sees the second-rate exalting itself and taking airs, he breaks out in fierce scorn.

I have quoted the lines he wrote for the outside of his house; on entering it he also wrote what he calls 'A Prayer', and it ends:

> And should some limb of the devil
> Destroy the view by cutting down an ash
> That shades the road, or setting up a cottage
> Planned in a government office, shorten his life,
> Manacle his soul upon the Red Sea bottom.

So he seems to withdraw oftener than he goes out. But he withdraws in order to weave his careful, subtle rhythms, which are something new in English poetry, and to tame his wild thoughts; he is always a man devoted to a task that seems to be laid on him, though he doesn't know the name of the taskmaster.

'Pray I will and sing I must,' he says, though the only god he can pray to is himself. He was fond of quoting a sentence of his father's: 'Poetry is the voice of the solitary spirit, prose the language of the sociable-minded'. Yeats can be sociable-minded, especially in his prose, kindly, interested in everything human, and also fond of gossip spiced with malice; but his poetry soars highest when it becomes the voice of the solitary spirit.

But the poetry of Yeats, after all, is not a thing to be talked about ; it is to be read and remembered. More than any other poet of this century, except perhaps Bridges, he refuses to be explained in terms of meanings and tendencies. Between poems, so to speak, he can talk endlessly about art and philosophy, for he has a restless and vigorous mind ; but when he is writing poems, he is writing poems, and that's all that can be said. And I will finish by reading a few of them, choosing as a rule the best-known, because they are the best. It is a poor mind that can't enjoy 'The Lake Isle of Innisfree', simply because others have enjoyed it before. Listen to it again :

> I will arise and go now, and go to Innisfree,
> And a small cabin build there, of clay and wattles made:
> Nine bean-rows will I have there, a hive for the honey-bee,
> And live alone in the bee-loud glade.
> And I shall have some peace there, for peace comes dropping slow,
> Dropping from the veils of the morning to where the cricket sings;
> There midnight's all a glimmer, and noon a purple glow,
> And evening full of the linnet's wings.
> I will arise and go now, for always night and day
> I hear lake water lapping with low sounds by the shore ;
> While I stand on the roadway, or on the pavements grey,
> I hear it in the deep heart's core.

Superficially it is like the romantic dreams so often offered by Yeats's successors and imitators ; but it is strong and lithe, and the images are clear and definitely-coloured. In the same way, it is instructive to compare Yeats's long mythological stories, in which vague shapes dream Druid dreams, and are apt to swoon Druid swoons, with the similar work of his predecessor William Morris.

The other early poems I'd like to read are 'Down by the salley-gardens', 'We who are old', 'A pity beyond all telling', 'When you are old and grey', 'All things uncomely and broken'; and the pleasant ballad 'When

I play on my fiddle in Dooney'. But I must content myself with one more:

> Had I the heavens' embroidered cloths,
> Enwrought with golden and silver light,
> The blue and the dim and the dark cloths
> Of night and light and the half-light,
> I would spread the cloths under your feet:
> But I, being poor, have only my dreams;
> I have spread my dreams under your feet;
> Tread softly because you tread on my dreams.

These were all published by 1900, though many of them were revised, or even re-written, in later years, always becoming shorter, barer, and more precise.

Then, in a volume published in 1910, he says:

> Though leaves are many, the root is one;
> Through all the lying days of my youth
> I swayed my leaves and flowers in the sun;
> Now I may wither into the truth.

Here is an example of his 'withering into truth', one of many poems on the ladies of gentle birth and fierce spirit who played so large a part in the Irish revolutionary movement:

> She lived in storm and strife,
> Her soul had such desire
> For what proud death may bring
> That it could not endure
> The common good of life,
> But lived as 'twere a king
> That packed his marriage day
> With banneret and pennon,
> Trumpet and kettledrum,
> And the outrageous cannon,
> To bundle time away
> That the night come.

Here is a brief passage from the long poem 'The Tower'; he says he stole it from Sturge Moore's 'Dying Swan', 'one of the loveliest lyrics of our time': but it is pure Yeats; only the commonest words are used, but it moves one's heart to the depths:

> —the hour
> When the swan must fix his eye
> Upon a fading gleam,
> Float out upon a long
> Last reach of glittering stream
> And there sing his last song.

And finally, here is the poem called 'The Second Coming', published in 1921:

> Turning and turning in the widening gyre
> The falcon cannot hear the falconer;
> Things fall apart; the centre cannot hold;
> Mere anarchy is loosed upon the world,
> The blood-dimmed tide is loosed, and everywhere
> The ceremony of innocence is drowned;
> The best lack all conviction, while the worst
> Are full of passionate intensity.
>
> Surely some revelation is at hand;
> Surely the Second Coming is at hand;
> The Second Coming! Hardly are those words out
> When a vast image from the *Spiritus Mundi*
> Troubles my sight: somewhere in sands of the desert
> A shape with lion body and the head of a man,
> A gaze blank and pitiless as the sun,
> Is moving its slow thighs, while all about it
> Reel shadows of the indignant desert birds.
> The darkness drops again; but now I know
> That twenty centuries of stony sleep
> Were vexed to nightmare by a rocking cradle,
> And what rough beast, its hour come round at last,
> Slouches towards Bethlehem to be born?

That is what I mean by style.

VAKROTI

SUBTLE EXPRESSION-TWIST IN SAMSKRIT LITERATURE

(Based on a Kannada talk from the A.I. R.—By kind courtesy of Station Director, Madras)

The science and art of Literary Criticism has been developed along very healthy lines in Samskrit as a handmaid of the creative art and already by about the tenth century A. D. critics in India have successfully indicated the proper methods by which a budding poet might carefully train himself into a poet of humanity. The critics, of course, did understand that a poet is born, not made, but it was possible, in some exceptional cases, to prune off, and trim away certain angularities of expression and personality. Anandavardhana, the prince of literary critics, postulated the theory of literary suggestion and showed that words could be invested with a pregnancy of expression that could enable the poet to conjure with literary ideas. Kuntalaka, who followed him soon after in the first half of the tenth century A. D., illustrated the way in which one and the same example might be expressed in a variety of ways by some literary twist of ideas. He expanded the previous conception by which this figure was narrowed to mean punning or double-meaning word and made this broad enough to include all the most important figures of speech as explained by the rhetoricians.

One telling example of his can easily be adduced in illustration. The way in which he pays his obeisance to God is really noteworthy. Wish-granting trees or trees under which the aspirant gets all his desires fulfilled are famous in our mythology. God is compared to such a KALPA tree or green tree in an oasis in the dreary desert of SAMSARA or worldly existence and His wife to the creeper that fondly clings to the tree. The loveliness of the metaphors can easily be imagined. The dramatist can, according to the self-same critic, introduce some novel deviation from the original and delight us. For example, Kalidasa introduced the ring idea and the curse of Durvasas which were not at all found in the original epic story and *made the* characters of Dushyanta and Sakuntala appeal to us in a much better light. The critic himself provides another beautiful instance of this which he calls Prabandha Vakrata or deviation in the subject-matter of the story and the instance he cites is from the Venisamhara, a vigorous drama by Bhatta Narayana of about the 7th century A.D. Here the story is the great battle between the Kauravas and the Pandavas. The context in the third act is soon after the death of Drona. The dramatist wants to provide a proper explanation for Asvatthaman's inactivity. The son of Drona was a mighty warrior, a *maharatha* to use the epic term, but the epic fails to explain the cause of the colossal failure of such a mighty personality. The dramatist insinuates that the fault is actually Duryodhana's in as much as the king did not choose his generals properly and what is more, made Karna the commander in spite of the fact that Asvatthaman offered his services. Karna, the darling of misfortune, was injudiciously chosen, as the poet makes us infer and the result was misfortune. Perhaps if Asvatthaman had been chosen he might have stemmed the tide of misfortune and held the Pandavas at bay, if he could not defeat them. Bhatta Narayana took his cue from Bhasa who made this son of this redoubtable warrior engaged in his father's obsequies from which he returned only to find Duryodhana with his thighs broken on the battlefield. In the third act he makes this Brahmin hero accept his maternal uncle Kripa's advice and request the King to appoint him the commander. Duryodhana has already offered the post to Karna and they are as a matter of fact together when Kripa and his nephew present themselves before the King. Both of them offer their condolences to the son of the Brahmin warrior and one is tempted to believe that it was crocodile tears they shed. The two Brahmin warriors are too much engrossed in

their own worries to note the insincerity of their tears; the talk turns on to the next commander and Kripa suggests his nephew's name but the King says that he has already promised the post to Karna. Kripa suggests that Asvatthaman should certainly be preferred in as much as he is smarting under the insult that was offered to his father. This is the signal for Karna's insulting the Brahmin hero and the dispute takes a very ugly, communal turn, the other two dissuading them, though rather unsuccessfully. In the end Asvatthaman throws down his sword in disgust saying he has renounced it. Karna promptly insults him further by insulting him and his father at one stroke saying that he inherited this quality from his father. Asvatthaman boils with rage but realises that he is impotent since he cannot wreak his revenge on the King's favourite. At that moment is heard the leonine roar of Bhima who has seized Dussasana by the hair and kicks him loudly calling out if anybody could dare protect the crown prince. Asvatthaman wants to take his sword at least to fight Bhima but is reminded of his vow; in despair, he sarcastically calls out to Karna 'O saviour of the King in his calamity, O Commander, O King's favourite, save the crown prince now if you can.' The sequel is the same as in the epic. Bhima drank Dussasana's blood in spite of Karna's vain efforts.

We may add a few examples of such subtle, crooked twists of expression which are familiarly heard every day. Most of the so-called figures of speech in our languages like the transferred epithet, synechdoche, hyperbole or poetic fancy, allegory, and so on, when properly examined are such twists of the expression. Particularly in Samskrit, the pundits never like to say to anybody 'Sit on this seat'; they would always prefer to say 'Decorate this seat'. They would never say 'What is your name?'; but would choose to ask 'What are the letters of the alphabet fortunate in being included in your name?' Similarly they would never say, the king defeated his enemies, but would like saying: 'The king has made grass to grow in the palaces of his enemies' or more pathetically, 'The king taught the widowed wives of the king to weep' or more poignantly still 'The king made the breasts of the enemies practice rigorous austerities like constant bath, fasting, keeping the fire of sorrow ever burning, keeping night vigils, etc.' War memorials are usually erected by victorious kings but according to Kalidasa, Rama never set any store on such temporary structures and established two permanent war memorials, Hanuman in the northern Himalayas and Vibhishana in the south, who could easily stand the wear and tear of all sorts of climatic conditions like the sun and rain. Bhasa in his drama Abhisheka suggests that Hanuman could not find a suitable visiting card to announce his arrival to Ravana and so devastated the Asoka Vana so carefully nurtured by Mandodari (Ravana's wife) to achieve his purpose. Similarly Sri Samkara describes Iswara's capacity to digest the deadly poison he drank at the churning of the ocean as the miraculous result of Parvati's chastity. Clever poets might ingeniously interpret and interest the readers admirably.

The greatness or genius of any language can often be tested by such witty and out-of-the-way expressions. A few of them are collected here at random. What is one man's meat is another man's poison, keeping the wolf from the door, burn the candle at both ends, white elephant, crocodile tears, biting the hand that feeds, turn the corner, eat the cake and have it too. Such expressions are particularly expressive and what is more, richly suggestive.

Kuntalaka's services to the creative and the critical artists are thus to be estimated very highly. It will be no exaggeration if we suggest that his peculiar blend of the creative and critical faculties in one and the same person is not found anywhere in world's literature except perhaps in Matthew Arnold and Coleridge in English. The critics always cite their own verses in illustration of their critical precepts in Alamkara sastra: from Bharata and Bhamaha down to Jagannatha Pandita Raya patronised by Shah Jehan, the contribution of our critics to creative art has been of a high order and Kuntalaka is a star of the first magnitude in our literary firmament. Even such

a great man was not honoured in his day being eclipsed by mightier giants like ANANDAVARDHANA and ABHINAVAGUPTA between whom he would almost have been sandwiched; he said he would prefer a short cut to fame and chose this perverted and peculiar and so-far untrodden path. The humour again is that Dr. S. K. De who has edited the book has been forced to take lessons from Dr. Jacobi in Germany as a proper study of this difficult text was almost abandoned in the land of its origin!

U. VENKATAKRISHNA RAO.

SPACE TRAVEL

A talk broadcast from Madras by DR. M. A. THANGARAJ, *on January 5th,* 1951.

Towards the end of the 15th century A.D. a Chinese mandarin named Wan-hoo made two large kites and mounted a light framework below them, provided with a seat. Forty-seven rockets were attached below the seat and 47 coolies stood by to light them all as nearly as possible at the same instant. When all was ready, Wan-hoo mounted on his seat and all the rockets were lighted simultaneously. With a terrific hissing and sputtering, and a great deal of smoke, the kites and all rose up. Wan-hoo quite literally disappeared in a cloud of smoke! Thus ended the first attempt made by man to leave this world by rockets.

From very early times man has speculated about worlds other than his own, and has travelled in his frequent flights of imagination over those vast millions of pinpoint worlds which brighten his night sky. As early as 160 A.D. the first book on a voyage to the moon was written by a Greek sophist named Lukian, whose hero flies up to the moon and to the stars, provided with two wings. In the nineteenth century, Jules Verne wrote of a space ship shot out from a cannon with a muzzle velocity of 7 miles per second in order to overcome the gravitational pull of the earth. This figure is quite correct, though the mode of acquiring that velocity is quite out of the question.

We can at once rule out flying to the moon as an impossibility. Flying needs air to fly against. The propellers of an aeroplane rotate fast like the blades of an electric fan and push the air backwards: this air pushes the propellers and the plane forward. Hence, flying needs air of sufficient density. But it is known that air gets thinner and thinner as we go higher. In fact, flying is not possible beyond a height of five miles. Being shot to the moon is just as impracticable. The required velocity of 7 miles per second simply cannot be acquired within the length of the gun, however long the gun may be, and however powerful the gun powder, because the air within the gun would act like a solid wall for such terrific increases of speed. And even if it were possible to get such an acceleration, it would shatter the space ship and occupants to pieces. And finally, even if the impossible happened, and space ship were fired with that velocity, the friction of the air outside would heat the ship and occupants to incandescence. No, a moon-gun is definitely out of the question.

And we are left with only one other method—rocket or jet-propulsion. There is really no difference between the two. In the orthodox sense, rockets means those which use solid fuels (in powder form), while jet-propulsion generally refers to liquid fuels. But the terms are interchangeable. Liquid fuels are much more efficient than powder and their supply can be regulated nicely by means of valves. The fuels are fed into the combustion chamber and fired automatically by an electric spark. The gases produced by combustion are pushed out backwards through the exhaust with tremendous force and these push the rocket forward. Thus, a rocket does not need outside atmosphere for climbing; it produces its own gases and pushes them out. In addition, the rocket starts with initial velocity zero and builds up speed at a rate which can be controlled by supplying less or more fuel. By the time the velocity

has become very high, the rocket would have gone beyond the atmosphere and so there is no friction and no heating. Hence rockets are ideally suited for space travel.

Anyone who attempts to leave the earth must first pass through the atmosphere, which consists of the troposphere, strato-sphere, ozonosphere and ionosphere; the pressure steadily decreases with height and beyond 50 miles is negligibly small. The highest altitude reached so far by a German rocket V-2 is 116 miles. A smaller rocket, called the Wac corporal, developed in America, attained a height of 250 miles with the aid of a V-2. Impressive as these heights are, they are insignificant compared to the distance we have to travel .even for the nearest celestial body, our moon. The moon is 239,000 miles from us, and the nearest planet Venus is never nearer than 26 million miles away, while Mars is at its nearest 39 million miles on the other side. Thus the performances of the rockets so far are like the jumping of fish from a pond, falling back into the water for precisely the same reason too—namely, the earth's gravitational pull.

Now, any rocket that aims to leave the earth must overcome the earth's gravitational force. For this, it must develop sufficient power of its own, which, in its turn, depends upon the efficiency and the quantity of the fuel the rocket is able to carry. It is obvious that for a successful flight the rocket itself should be as light as possible and that it should be capable of carrying as much fuel as possible. The ratio between the weights of the rocket when fuelled and when empty is called the *mass ratio* and this is the most important single factor in rocket science. The mass ratio of the German V-2 was 3 to 1; that is, the weight of the rocket at the time of firing was three times as great as the final weight of the rocket. It is obvious that the greater the mass ratio (which means a greater fuel load) the greater will be the altitude to which the rocket will rise.

Now, the exhaust velocity depends upon the efficiency of the fuel. The V-2 used liquid oxygen and alcohol and these could produce an exhaust velocity of 2.6 miles per second or over 9,300 miles per hour, though only a third of this velocity was reached in practice by the V-2. If petrol and oxygen were used they could produce an exhaust velocity of 2.8 miles per sec. If hydrogen could be used as fuel with oxygen, it would produce a velocity of 3.2 miles/sec; but it is extremely difficult to store and handle. If ozone were used instead of oxygen with the above fuels, about 10 per cent higher exhaust velocities would be obtained, and in the same tank capacity a greater weight of ozone can be carried because of its larger density than oxygen. So, at present, the available fuels are alcohol or petrol to combine with oxygen or ozone. And these could produce altitudes of some 3,800 miles with oxygen and 7,500 miles with ozone. They cannot be called altitudes any more, but begin to look like 'Distances' in the astronomical sense. This gives us courge to tackle the problem of the 'Moon-rocket'.

The moon-rocket must be able to ascend to such a height that it crosses the zone where the gravitational forces of the earth and moon are equal, so that the rocket does not fall back to earth but will fall on the moon. In order to escape from the gravity of the earth completely the rocket must build up a velocity of 7 miles per second. This is possible at present only if the rocket were built in a special way—called the "step-rocket". A lighter rocket is carried on a heavier one and is fired when the heavier has reached its maximum velocity. The Germans had actually built such a 2-step rocket to send to America, though they never came round to using it. Addition of several such steps would carry the rocket beyond our earth's gravitational field into the moon's gravity.

Once this neutral point is crossed, the rocket would start falling towards the moon and would crash on its surface with a velocity of 2 miles per second. If a small quantity of high explosive were put on the nose of the rocket, along with about 10 pounds of some fine white powder, the impact would set off the explosive which would scatter the powder over a large area

on the surface of the moon. It would look very bright from the earth and would enable us to locate the place where the rocket had landed.

We may go a step further now. If we increase the amount of fuel, we may make the rocket go round the moon and fall back to the earth. Automatic film cameras in the rocket can take pictures of 'the other side' of the moon, which never faces the earth. But unless the rocket were maintained on the proper course very accurately, it would crash into the moon. For these adjustments and control a human pilot is necessary; and the space rocket then becomes a space 'ship'.

But the human pilot at once raises many more problems. How is he going to land? How about the return journey? What will he do for food, drink and breathing? Will there be danger from meteorites and the like? Frightening as these problems are, many have been solved, at least partially, and the others no doubt will be solved in the near future.

Suppose we are on a rocket bound for the moon. Our rocket motors will work for the first eight minutes after taking off vertically from the earth. The time of take-off must be carefully calculated so that our course, which will be an ellipse, crosses the moon about 98 hours after the take-off. By that time we would have passed beyond the earth's gravity and would have fallen most of the way down to the moon. But, for safe landing, we must kill the speed acquired during this fall. So we turn the rocket upside down, which is a very simple process, and work the motors the opposite way so as to reduce the velocity to zero when the ship just lands on the moon. After some time we would take off for the earth and for this the motors would work for about 1½ minutes to gain the escape velocity. Then we will start falling towards the earth and will have gained a velocity of 7 miles per second which should be reduced to zero before landing. This can be done without further expenditure of fuel, thanks to the resistance of our atmosphere. Only, we cannot just shoot through the air, hoping to be stopped by the friction: the friction would heat our ship to incandescence. So we must manoeuvre the ship so that it just grazes the atmosphere and shoots back into space in a long ellipse, with reduced velocity. It cannot escape the earth now and will fall back in a smaller ellipse. It is made to pass through the atmosphere again and gets slowed down more. A few more such spirals will reduce the velocity sufficiently and we can finally land by a large parachute.

The whole venture would have taken us 196 hours plus 24 hours for landing manoeuvres on earth. If we can find a fuel that will give us an exhaust velocity of 3 miles per second, a two-step rocket could make the trip right away.

We have not yet tackled some of the questions we raised earlier regarding the welfare of the pilot. How about the cold in space? Well, it is *not* cold in space, nor is it warm either. Space does not have temperature: only material bodies have. The temperature of the spaceship can be regulated by painting one half of the cabin a dull black to absorb heat, and brightly polishing the other half to reflect away heat. By turning the black portion towards or away from the sun, the temperature can be controlled. The ship can be turned about simply by turning a wheel inside, without affecting its course in space.

Ultraviolet radiations will be stopped by the metal body of the ship. The windows can be made of plastic opaque to ultraviolet light. We do not yet know what effect cosmic radiation will have on our body. As for the danger from passing meteorites we must remember that our spaceship is extremely small and so the chances of its being hit are negligible.

Food supply must be taken along for the whole journey—probably dehydrated and and compressed, to reduce weight and volume. But we need not take a full measure of water or oxygen. A very simple method has been proposed by the rocket expert Prof. Oberth of Germany by which the water eliminated from our body can be recovered and distilled out in space and used over and over again in very pure form. For breathing, liquid oxygen may be taken

for short journeys; but for journeys extending over many weeks, for example to plannets, it is best to take growing plants instead of oxygen. Plants use carbondioxide and exhale oxygen. A growing pumpkin plant is recommended as most suitable.

We do not yet know what effect prolonged absence of gravity will have on our body tissues. Probably the voluntary muscles may decay unless we give them constant exercise. But we can produce artificial acceleration, whenever necessary, by centrifuges, i.e. fast-rotating chairs fixed in the cabin; or, the cabin itself can be rotated fast. Centrifugal acceleration is a perfect substitute for gravity.

As for navigation in space, we can fix our position from time to time by measuring the angle made by our sun and a star and the angle made by the sun and the nearest planet: knowing the position of the planet with respect to the sun that day (from the almanac) our position in space can be calculated. Of course, the sun and all the stars and planets will be seen at all times in space against a perfectly black background as there is no atmosphere out there. The distances can be found out directly by radar too.

But space travel does not mean just a trip to the moon. A moonship or a moon rocket is just a footnote on the first page of the story of space travel. For, the moon-travel does not take into account the gravitational influence of the sun, or the orbital motion of the earth. Going to the moon is like going to another seat in the same compartment of a railway train. It does not matter whether the train is standing still or going at full speed. The moon, along with the earth, is circling round the sun with the same speed, and is under the same force of sun's gravity. But when we plan to go to another planet, the earth's orbital motion must be considered. It is like leaving the train, in which case the speed of the train becomes an important consideration.

Any rocket that takes off from the earth has the orbital velocity of the earth. By reducing this velocity with the motors, we can drift inward towards the orbit of Venus, or by adding to this velocity we can approach the next outer orbit, i.e., of Mars. Slight adjustments of velocity will be necessary in order to make the velocity of the rocket equal to that of the target planet, and the landing manoeuvre will be the same as explained earlier. Once we get there, we cannot take off for the earth at once; we must wait until the planets and the earth are in the proper positions. The whole round trip including the waiting period would be about two years and one month to Venus and two years eight months to Mars.

With the present day fuel, inter-planetary travel seems an impossibility. But we have with us something which has endless possibilities—atomic energy. The energy that can be obtained from Uranium 235, is 3 million times that from petrol. When that energy is tamed for useful purposes, anything is possible. We may then truly plan spaceships which can take-off for any of the planets of the solar system. But that is all in the distant future — how distant we can't even guess at present. But what *is* possible today, with the fuels and engineering skill now available, is to send unmanned rockets to the moon and collect more data about outer space before attempting anything further.

But there is one other method which would make space travel possible even without waiting for atomic energy—namely, the establishment of a *refuelling station* in space. This idea is not as crazy as it sounds, and is much easier than sending a rocket to the moon. If a spaceship goes up to a height of 500 miles and acquires a horizontal velocity of about 5 miles per sec., it will start circling the earth like our moon, making a revolution every two hours. And this can be done with the fuels available *now*. Once this station is established, materials could be transported to it from time to time and the station built up. With a fully equipped station in space, trips to the moon and to the planets become possible at once. And when atomic energy comes to be used—well, I can only say that we are in for an exciting period of new voyages into unknown space.

GANDHI

Long before Godse came we ripped his chest;
Though we felt his was the answer to our cries.
We marvelled at his cross: his earthly test:
And then we all wondered why he did not rise.

If this had happened down the beginning
Of plants and animals and birds, as time held
Us green in the erected air, singing
We could have paid at the ivory price art sold.

Irony as he lay: that Huxley said.
Five hours Patel bowed his head: not once a raise.
His hearse a roped gun-carriage; on his bed
Bombers threw roses in a sainted maze.

Ai Ram! he must have known the end was near;
We 'll tell his story through the years to follow.
This is a strange world, the play, the thing, so dear
When Nehru's eloquent lips brinked hollow.

He should have made the cover of TIME that week
But Gandhi in all his blaze of noon and good
Is warm and living when we take a peek
At our universe in flight: Palomar's hood.

LEO FREDERICKS.

NOSTALGIA

The floor that moves and gathers friends
Disturbs no atom of the dust
And is a map where the desert ends
My widening, vanishing jest.

I'm not special: I must wear the throbs
Of all the ruined days I stole.
I have a mind. Is it a thing with knobs
That I can control?

Out of the chatter, O to raise a face
To live events that entries are!
For me no face will come from space,
A clash of clouds, a roar.

The voices send me to the wall
To eat the thoughts of another time,
And there's a day between the fall
Of Gandhi and primeval slime.

I will not sit down trapping, trapping
My youth's flowers to mourn her
For laughter may greet an old man napping,
Napping in an old corner.

T. V. DATTATREYAN.

LIBERTY

The scurrying feet outside bent on business;
The laughs, the jokes and lusty mirth:
The full-blooded, virile life that men live;
Shut up in my closet, I chose to ignore.

They sang: they quarrelled
As cats do and broke skulls and peace;
Talked of ethics, æsthetics and love.
I sat in my closet—grim, high, above.

Novelty and revolutions swayed men's hearts,
Worlds were created on rosy ideas and smashed.
The heart of youth throbbed, lost itself in ecstasy.
I kept away.

Locked in embrace upon the misty river's bank,
The moon keeping watch, lovers lay with hearts trumpeting, lips solemnly closed.
The languorous wind that engendered love's tickling rapture
My door shut out.

Then on an evening's quiet repose
When life was on holiday, one little child cried for its mother. My doors gaped wide;
I shot out into the wide streets; I was one with everything,
With humanity that breathed and LIVED.

M. UNNIKRISHNAN

LIGHT IN OUR DARKNESS

The heavy night was strange and deep,
Hushed with a secret. . . no sound of sleep,
As if death itself with mournful rhyme
Had struck the earth before her time.
The Roman soldier who watched beside
The tomb of Him. . . the Crucified,
Was far too still for human rest
His mind with doubts and fears oppressed.
The stillness spread to the heart of things
And hushed the age-long questionings.
. . . How could we know? He dwelt apart
Still moving in the very heart.
Silently He went, He cannot fail. . .
But what hope? The cruel nail
Had chased the stars across the skies,
And filled with sorrow all loving eyes.

But look! What ecstacy shakes the grass!
Whence this dawn lighting up the Cross?
'Mary!' . . . The Earth's pain gives up its night.
The world breaks trembling into living light.

ARUNTATHY KANAGATHUNGAM

COSMIC RAYS

RAYS AND BALLOONS

Much has been spoken and heard about Cosmic Rays these few months in Tambaram, interest being no doubt aroused from the work of the Tata Balloon group in the College grounds. Cosmic Rays have been studied only for half a century now; but the advances made are considerable. It is a long way from the leaking electroscopes to the recording photographic emulsion.

Absurd as it may sound, no one quite knows what Cosmic Rays are. They are coming from nobody-knows-where[1] and are produced in some way no one is quite sure of. They are some very penetrating radiation from the outside space (the "Cosmos") and bombard the earth, every square inch of its surface. It was this universality of effect that made this study so necessary and so easy.

Electrical methods of registering these rays were initially used but electronic arrangements were substituted for greater sensitvity. Such are the so-called Cosmic-Ray Counters which mechanically 'count' the number of C-particles striking a certain fixed area. In contrast with the elaborate electronic circuits of these is the great simplicity of the latest photographic emulsion technique, where a particle leaves its trail on a special photographic plate which can be developed and kept permanently. It is much like the 'snail' leaving a shiny film-like trail on the path it crawls along.

To find the effect of cosmic rays at places other than the earth's surface, balloon flights were undertaken. The earliest recorded are those of Hess and Kohlhorster and of Piccard. These people travelled in gas-filled balloons with all their instruments; but the risk involved was considerable. Hence was developed the sounding balloon technique where the balloons are sent up with self-recording instruments. When the balloon bursts they come down and are recovered. This is the method now invariably used. In this field the work of R. A. Millikan deserves special mention.

The work of the Tata Balloon Group in the College Cricket fields is typical of the latest developments. They used unmanned balloons inflated with hydrogen, a team of about 20 balloons[2] being used carry up the *gondola*—the metallic chamber enclosing the recording apparatus—; and also the barographs for an automatic record of the floating altitude. The cluster having extra lifting power rose rapidly to a great height (round about 70,000 feet) and floated there. A balloon bursting meant the cluster taking up some other smaller altitude and then floating. Continuous observations about the position of the cluster were made by means of a batch of 4 theodolites at Kolar, Bangalore, Vellcre and Tambaram. This was in addition to the barograph record on a moving film. An automatic release of the gondola was arranged in most of the experiments, the gondola floating down with its attached parachute.

The recording system was the *Powell photographic emlusion.* A set of 64 plates was mounted on an easily rotatable frame. An electronic circuit controlled the rotating motor[3] enabling the alignment of the frame in the north-south direction, independent of the spinning of the gondola. A passing Ccsmic Ray particle will make its own track on the plate and this could afterwards be developed.

Dr Bernard Peters of the Rochester University (U.S.) and Dr H. J. Taylor of the Tata Institute of Fundamental Research and the Wilson College (Bombay) were the leading scientists.

Many may be wondering what material use is to be the outcome of such costly and elaborate experiments. Visions of the harnessing of the energy of the incoming radiations are seen by some. A cosmic

[1] Recent reports were seen in the papers pointing to a possible solar origin of these radiations.
[2] A sand-ballast for constant altitude floating was tried but was not found very satisfactory.
[3] Volunteers (most of whom were from St. Thomas's Hall!) may remember the queer 'screeches' and 'squeaks' heard inside the gondola.

ray bomb or C–bomb is expected as a development by others. But these rosy visions may not be in the range of the possible. (The tides contain more energy than all the cosmic radiation.) But the greatest use is in *pure scientific study.* Already two new fundamental particles—the *Positron* and the *Meson*—have been discovered during cosmic-ray experiments. The cosmic radiation provides us with a nuclear laboratory rich in resources unimaginable in terrestrial laboratories. The only disadvantage of this 'Cosmic Nuclear Laboratory' is that it is 'remote-controlled' and the control-board is not within our reach! A notable achievement of this type of nuclear study is the photographic recording of *nuclear reactions;* they are popularly termed Cosmic Ray Stars.

Cosmic Ray research is now rapidly progressing; almost all universities have a research team working in this field. (Tambaram is ideal[4] for this purpose!) Very important clues to the study of the *atomic nucleus* and of the *fundamental nature of matter* are sure to follow from the study of Cosmic Rays.

E. C. GEORGE
G. B. TIMOTHY

SOME IMPRESSIONS

I

I would like to record some impressions and experiences obtained through contact with, and work for, a team of students from the Tata Institute of Fundamental Research, Bombay, led by Dr B. Peters of Rochester University and Dr H. J. Taylor of Bombay University. The team was here for the greater part of the second term and some of us, while helping, had a good opportunity to see scientific work at first hand.

Until recently, only secondary cosmic rays were amenable to experiments. These rays, though once thought to be wave-like, are now recognised as made up of electrically-charged particles carrying with them large amounts of energy. Because the intensity of the observed phenomena depends on the geo-magnetic latitude, with maxima near the poles and a minimum near the equator; because zonal variations of intensity were clearly recognised, and because classical physical theory indicated that these results could be predicted if the agency causing them were a moving electric charge, intensive research was made to determine the nature of the energy-transporting corpuscules.

Suitable choice of apparatus and location showed that the secondary rays contained, besides a relatively more powerful component, electrons, helium nuclei and protons. The average intensity level of the rays was accounted for by the energy the particles carried. The relatively more powerful part—in part composed of mesons, in part of very light uncharged corpuscules, is a direct result of what is known as a 'shower phenomenon'.

It is this 'shower' that is assumed to be the means whereby cosmic rays are projected into the earth's atmosphere. The process is extremely rapid and consists in the successive transformation of mass into energy and energy into mass, whereby mesons are first formed and subsequenly 'decay' into more elementary corpuscules. A shower will only occur where there are molecules: hence it can commence in the outer regions of the atmosphere, and travel towards the earth while continually losing energy. To start a shower, a primary cosmic ray was postulated. Its existence has been proved by the latest work on cosmic rays; its characteristics are in process of discovery.

Dr Peters, an authority on this subject, summed up the aims of the experiments conducted here by stating some questions to which answers are still being sought. First of all, where does the primary come from, and how long has it been *en route?* If its energy is derived from a great field of electro-magnetic force, where is this field? What are the primaries? What

[4] Among the advantages of Tambaram as a Cosmic Ray Research Centre may be mentioned the location near the geomagnetic equator, extensive grounds of the College, proximity to the Meenambakkam Meteorological Station and equable weather conditions throughout the major part of the year.

their charge ? What their relative composition ?

To answer some of the questions, the fact that a charged particle, moving in a magnetic field, will be deflected in accordance with the sign of its charge, is of vital importance. Theory predicts that a positive particle, possessing more energy than a stated minimum, will be deflected so as to reach the earth from the west. Particles of lesser energy will not be able to penetrate right down to the earth but they will follow definitely predictable paths. At the magnetic equator or near it, the cosmic ray intensity will be a minimum. But, if experiments are conducted in this region, they will yield very important and definite results. For, the higher one goes, the larger will be the number of particles encountered ; their energies will, normally, vary between wide limits.

What is required, therefore, is a means of attaining, and keeping for a sufficient time, a high altitude in which to perform experiments, and if possible, a means of orientation in space, relative to the earth.

A recent development in the study of cosmic rays, is the photographic, micro-emulsion technique. This, up to now, is the only method available which will provide permanent records of the particles. Briefly, it consists in presenting to the particle a series of emulsions in which, by the ionizing action of the incident particle, a trace of the trajectory of the active agent is obtained. The emulsion for this work must be of especially fine and even texture and it is in general far thicker than any ordinary photographic emulsion. On development the tracks obtained are not only characteristic of the particle causing them ; they are directed into successive emulsions, so that the incident direction can be deduced ; and they are sufficiently coarse to allow the attenuation of the energy of the corpuscule to be inferred.

In every photographic film cosmic rays affect the emulsion from the moment it is manufactured. But owing to the coarseness of ordinary emulsions, and the fact that only secondary rays are felt on the earth's surface, no serious interference is felt. In the micro-emulsions, the secondaries provide a certain background of irregular lines, which do not generally hinder the study of primary tracks.

Preliminary results indicate that the composition of primary cosmic rays follows closely the composition of matter in interstellar space and of matter composing terrestrial bodies. Nuclei of most of the lighter elements ranging up to iron, have been identified. The nuclei therefore have both large mass and charge, and they carry with them great amounts of energy. Their origin, at one time considered due to a powerful field of force in space, seems now to be looked for in the field surrounding the sun. How long these nuclei have travelled is not firmly established, but it may amount to hundreds of years. It is, fairly clear that there is a preponderance of positive over negative charges.

Though individually each particle comes with a large amount of energy, the aggregate energy is comparable with the energy received by the earth from the stars.

The present work, in Tambaram, was designed primarily to study primaries near the equator—the first* such study to be undertaken—; to obtain further evidence to support the nature and charge of the particles, to deduce, from the measurements made, whether or not the cosmic rays have a galactic origin.

II

One of my most dominant impressions in the method of work followed by the team was, that with a little extra planning, a little more thought given to some problem, many frustrations, improvisations, changes, in general the attempt to find the correct formula, so to say, could have been avoided. Though Dr Peters said somewhat ironically, that all the details of balloon flights ear never reported in the literature, that

* It is not the first time balloon flights for the study of cosmic rays have been made near Madras : such flights were made some twenty years ago—it was realised even at that date that if it is required to make balloon flights near the magnetic equator, then South India is about the most suitable part of the world for the flights. But at the time, unless a very heavy apparatus was sent up it was not possible to record anything but the intensity of the particles.—ED.

every experimenter must find out the little things that go to make success by himself; I think it regrettable that this should be the case. Not only time and money could be saved, the poor worker could be relieved of much chagrin, if these points were reported somewhere, sometime.

Most decisions were made after lengthy discussion. Often as not, Dr Peters presented a fairly indisputable logic to prove some point or other and applied, to the best advantage, the results of probability. Unfortunately, all that came out of the work seems summed up by Dr Taylor before he left : 'All that we've learnt is, how not to make flights !' The team, as a team, was a very happy one. I was struck by the spirit in which, and the knowledge through which, most of the work was done. The students knew their subject, and how to apply their knowledge to its furtherance. Despite all this, there were many moments of anxiety and frustration : a state of affairs put into a nutshell by the question : 'Well, aren't you fed up with research after seeing all this?'; and its irresistible answer of 'No, frustrations must play their part.'

The internationality of the work was very striking. Peters from America used plates supplied by Powell in England for flights in India. Rochester and Bristol were not the only institutions concerned, however. Material for other institutions was also flown quite regularly. There seemed the utmost co-operation between the various governments concerned; and of course the close contact of producer and consumer in America was easily discerned. Dr Peters had obtained the best of what he wanted from concerns in the U.S. and had permission to bring it to India without duty, provided the apparatus was taken back after the work was over. The Indian army signal corps operated short-wave communication between the various 'observation posts'; various Indian concerns gave their support. On the whole, not much that could point to difficulty in the way was noticeable. It speaks much for the ideals of science, that boundaries do not intervene and industry and research go hand in hand.

III

It was planned to make ten flights. The apparatus had in the main been constructed by Dr Peters in America ; it was assembled and perfected in Bombay. Time was an important factor since the monsoon was due. Yet there seemed little to fear since with an easterly monsoon, the balloons should remain over land.

Meteorology deals only with the first few miles of the atmosphere. Flights were to go to a height of twenty miles, if all went well. It was found that winds in the upper regions were not always easterly. Only on one occasion, did the balloons return to land after having drifted out to sea. In the other cases where the initial flight was seawards, the balloons did not return. Though 60% failure was expected, no one was prepared for the loss of three of the nine Tambaram flights due to this cause. Neither was anybody optimistic of a 100% recovery of the balloons which landed safely. All the six flights were recovered but in only two or three cases had they not been tampered with.

The flights were not the success they should have been. From Tambaram the maximum height reached was barely 18 miles. The best flight was one of the two made from Bangalore after the team had shifted there to avoid further losses in the sea. Unfortunately this flight still lies in impenetrable jungle where by the worst stroke of ill-luck it chose to land.

I shall content myself with a few remarks on some representative aspects of the work, the continued improvisation and the method of observation.

The plan of a flight was briefly as follows. A large number of balloons up to about thirty-five was to carry a load of about 40 lbs. Somewhere in the upper regions the balloons would burst and with the load heavier than the lift, the apparatus would then descend. But it was found that in many cases the bursting of one balloon produced a series of adjustments whereby the flight would float for a fairly long period at a particular altitude in apparent equilibrium. Further bursts lowered the equilibrium level and only at sunset, when the balloons

were no longer warmed, could the flight descend.

Initially it was thought necessary to include ballast to allow the flight sufficient time at its maximum height. This was proved to be unnecessary. A long flight resulted when the ballast did not go up in one of the early flights, and these equilibrium levels were discovered. All the same, for some of the last flights, ballast was again used. The initial ballast had been carefully prepared sand; the final ballast arrived at after some experimentation was hot water.

The apparatus was made up mainly of 'an ingenious electronic circuit'—according to Dr Taylor—which aimed at keeping a stock of micro-emulsion plates in the north-south axis so that all primaries would traverse the emulsions normal to this direction. Below this unit, which was contained in a black aluminium can, hung the barograph. The can was used to carry notices in several languages offering a reward.

The barograph was one of the most varied instruments. It had to be light and accurate and so it consisted of clockwork carrying a rotating film on which the meniscus of mercury in a small low-pressure manometer was focussed, light being obtained from torch batteries. Under static conditions it worked; in the air it often failed. Originally it was not very well protected from the curious hands of the villagers and even otherwise fate was whimsical. In cases where the battery did not fail, the film had been tampered with or else the clock had stopped.

Frantic development of a tinbox container with sunlight illumination; two instruments were shipped, one old, one new. The new one was tampered with but the duplication had had its effects. One of the very few perfect records of a long flight was secured; the flight was not a very high one.

Steel tape around the tinbox container was not of much use. A fool-proof barograph in a spare unit cover went into the sea. Finally light-proof instruments protected as much as possible were used; none came back.

We were lucky that the theodolite readings were of sufficient accuracy to give a fairly faithful record of the flight. Only in rare cases were the balloons lost in a cloud. Theodolites had been set up in Bangalore, Kolar, Vellore and Tambaram and use was made of the meteorological instrument at Meenambakkam. The Kolar station was soon transferred to Tambaram and formed a mobile unit. The theodolites were trained on to the rising bunch of white spheres—beautifully red when they just caught the rays of the rising sun but otherwise most silverly, and readings were taken every five minutes.

The question of timing the readings was one of the most crucial ones. All observations from the several posts were to be taken simultaneously but there were only two chronometers, one in Vellore and one with the mobile station. Between Tambaram and Meenambakkam no accurate co-ordination seemed possible. All sorts of ways were tried: stop-watches, wrist-watches, pocket watches; setting before the start of observation, periodic telephone checkups; the use of 'Taylor standard time' whereby all times were taken with reference to Dr Taylor's wrist watch; not one of these methods succeeded. One reading or the other, one station or the other, was a few minutes, sometimes only several seconds, out of alignment. The result was endless calculation, computation, interpolation, till eventually some sort of consistency resulted in the graphical trajectory. In point of fact at one stage of the work Dr Taylor, who did most of the calculation, had brought his method to so fine an art that he could plot a point every a few minutes. All the same the data kept accumulating faster than he could dispose of it.

Despite these difficulties the standard of observation was such that we were able, from the start, to say with practical certainty just where the balloons would land

The question of the distribution of balloons was another of the problems which never really found a correct solution. Balloons in clusters below each other, balloons in one big bunch, balloons in company, single balloons, all conceivable

arrangements were tried but no one arrangement ever seemed to be superior to the others. To reduce the deadweight of a burst balloon, a small tube containing sulphuric acid was fixed to each so that, when the burst remains began to drag, the acid would run out and eat away the rope. No one thought of the acid freezing before it could do its work and only on one occasion, before the idea was abandoned, was there definite evidence of the successful function of the device.

A flight was not definitely planned until the next day's weather report was received and though the balloons were filled from 3 a.m. onwards and the flight was released at dawn, we were often not in bed before 11 o'clock. There was always some last-minute problem, some uncompleted device No sooner were the balloons away, than with perfect timing the thermos-flask appeared and we were each served with a cup of coffee. Thereafter, the team split up and everyone went to his job either at the various observation posts or on some problem connected with the next flight. There was always great excitement, always hope and always disappointment, but despite it all we were never short of theories or suggestions. Never would we admit that the next flight would not be better. It was a great experience, but at the same time a worthy lesson in the world of research.

G. B. FRIEDMANN.

ON LOOKING THROUGH A MICROSCOPE

On first looking through a microscope at the tracks of cosmic-ray particles! It deserves a poem of discovery, like on first standing on a peak in Darien, or on looking into a book which acts as a door into some new civilisation.

I had called at Barnes House, and found Mr Srikantiah examining some of the results of one of the early flights. Each flight carried 80 photographic plates, and after development each is cut into 8 parts, and this was one of the 640 microscopic slides that result. The phrase photographic plate suggests a flat picture, but actually the slab of photographic emulsion is up to nearly half a millimeter in thickness, and under the microscope you see the tracks of the particles in depth, and not just as a flat picture.

We have, preserved in this microscope slide, a record of the whole history of the energetic particles that have passed through this substance during its life as a sensitive plate. We study the effects of one particle which was in the plate for some small fraction of a microsecond* during the flight. In that swift transit it has transformed a few thousands of atoms, and each of them has acted on the material in its immediate neighbourhood, and becomes the centre of a lump of matter big enough for our microscope to show us.

It is a wonderful peep into rare events. I wonder if human history is like that: one brief life away in the past, coming in from outside, transforming a few thousands of people who become the centres of a society which endures through the acids that dissolve all human history. It looks like a possible picture. 'How many atoms are there in this bit of the slide we see now?' '10^{18}' Someone else says '10^{22}'. Perhaps a factor of 10,000 here or there does not make much difference to any conception we can have of so large a number. Anyhow it is likely to exceed the number of human beings in a million generations, or the number of vertebrate animals that have ever existed, and yet our concern is with the effects of that one particle that swiftly passed through.

Well! Of course I do not suggest that the results of this physical experiment can prove anything about human life. Indeed what I am suggesting is almost the exact opposite of that. Quite a lot of people nowadays seem to think that physical laws being so well established ought to suffice to

* A microsecond is a millionth of a second.

interpret human life. We ought rather to imitate the physicists. For when they find some small discrepancy—like Becquerel's finding in 1898 a photographic plate inexplicably fogged—they do not say 'Absurd! Such things don't happen.' They spend any amount of time and trouble and expense to discover why they happen. Some would say 'All men are selfish. All history is determined by economic motives.' And yet exceptions to that are not quite as rare as our cosmic-ray particle! And fully as much worth investigating. If you observe a cosmic-ray particle, if you observe an unselfish man, an unselfish act, you observe something which has come from outside our mundane experience. And if in either case you pursue your enquires as to where it has come from, and how it operates, you may be led to discover a source of power that will transform our lives.

* * *

We have seen, repeatedly, the displacement of what had seemed completely established physical laws. When I was a boy at school we were still taught in chemistry that each element consists of atoms, which never change. It was with a great thrill therefore that I found in a public library a book giving a clear account of the discoveries which (following Becquerel) the Curies had made, and of Rutherford's theory of the atom. It seemed then, or shortly afterwards, that matter is made up of two fundamental particles, electrons and protons, which are as immutable as the atoms had been supposed to be. And now cosmic-ray research has shown that these particles too may change and disappear, be created, or transformed. The statements which were earlier made without qualification, are now made with one significant exception. We no longer say 'No separate particles can exist except electrons and protons (and neutrons, and possibly a few others)', but 'No other particles can exist for longer than a few microseconds.' And not now 'No atom can be changed into any other atom', but 'No atom can be so changed unless some tremendous force hits it.' Not 'No man will really be unselfish', but 'No man will be unselfish unless he receives the grace of God.'

* * *

We were filling the balloons and parking them on the cricket field from 3 a.m. How many different answers, all of them true, might be given to the question 'What are you all doing here?'

One would say 'Dancing round a fiery cauldron, at an hour when even to be awake is a thrill!'

And another: 'Boiling these synthetic-rubber balloons, to reduce crystallisation and increase the chance of a high flight.'

Many would add 'Happily joining in a lively job with a jolly and congenial band of fellows from the Tata Institute.'

My own thought was: 'Sending up balloons in Tambaram in order that someone far away may study some microscope slides.' Actually the 640 slides from each flight will all be preserved and may be studied not in one place but in many places, and re-studied over a number of years.

But perhaps the final answer will be 'Taking part in the discovery of the form of the atomic nucleus and the nature of matter.'

W. F. K.

Photographs between pages 84 and 85

PRINTED CIRCUITS

Summary by S. S. THANARAJ of a lecture given by Mr. J. K. Moorthi, Assistant Radio Engineer, Provincial Broadcasting System, and Lecturer, M.I.T., Chromepet, to the Physics Association.

Both professional men and amateurs find great interest in constructing radio receivers. They know that the requisites of a receiver are the aerial, resistors—wires having great resistance to the flow of electricity, capacitors, i.e., parallel metal plates kept at a distance apart, inductors—wires in the form of a helix, valves and loud-speakers or head-phones. Of course, copper wires are also needed for connecting the various components. It is, however, not so widely recognised that in view of the exceedingly tiny electric currents wanted in even big receivers, the bulk of the metal used in connecting wires is mostly idle all the time and can be diminished without interfering with the function of the receiver. To the radio industry the realisation of this aspect will make as much difference as it would in the making of a book if all the letters had been cut out of wooden or metal blocks and assembled together which now are printed on thin parchment paper.

A thin board or sheet made of a substance which is a good electrical insulator, say of ceramic, vitreous or plastic material, might be taken and on it lines drawn at proper places using a brush and a paint containing silver as the pigment. Gaps would be left at which the capacitors and inductors can be printed later on. These lines, after some treatment, conduct electricity as well as any ordinary copper wire. Small metal drops known as 'eyelets' are placed at the points of intersection of two lines to secure good connection. Crossovers can also be painted by insulating varnish. Since lines drawn with a high quality graphite have very large resistance, they can be used as the the resistors in the circuit. Carbon-black, colloidal graphite and lamp-black might also be used with powdered mica or iron-free asbestos powder to draw lines of very high resistances. Capacitors can be painted as two circular discs on the board with a metallic paint, one on each side of the board or as two conducting discs painted one above the other with a medium whose dielectric constant is of the order of thousands (viz., titanium oxide), in between them. Lines painted in spiral form could serve as small inductors and a large value might be achieved by piling such spirals one above the other with ferromagnetic paint serving both as insulators and high permeability cores. The aerial can be painted as parallel lines on the back of the board. It may not be painted at all since good receivers require no aerial!

There are six possible methods of printing these circuits. One consists in printing these lines with paints made of suitable pigments, binders and fillers very much in the style of an artist painting a picture. If the pigments used in the paint are some compounds of silver, the painted lines are treated with a reducing agent to reduce those compounds to the metal. A protective coating consisting of a paint of resistive type, is given on the lines drawn, the wet paint is dried in infra-red light, the board is baked in a furnace of a temperature depending upon the melting point of the material of the board, to retain the paint, and the board is ready for use. In the next method, molten metal is sprayed by a thin strong blast of air on an insulating baseboard covered with a suitable stencil. The metal particles in the unnecessary portions can be removed by the process of 'stoning' or 'milling'. In another method chemical deposition is employed. The metal is precipitated along the required parts and thickened, to carry the necessary current, by electro-plating. In yet another method thin metal lines are produced by vacuum evaporation. The principles of die-stamping and dusting may also be utilised in printing these circuits.

Such printing of circuits, greatly reducing the size and weight of the receiver lends itself to easy and rapid mass production.

Methods have reached a stage at which a good printed circuit can be completed at the rate of one set for every twenty seconds.

Printed circuits at the present time are available for spot frequencies only and it may take some more research to devise tunable circuits. The valves employed for these circuits are the subminiature types of valves which are even smaller than small thimbles. It is not inconceivable that neckties made of miniver or silk will present a suitable base for printed circuits, the valves taking the place of ornamental tie-pins and soon a time will come when everybody will be having a radio receiver printed on his 'tie'! And probably one would choose one's 'tie' not on the basis of colour and quality, as most of our young men do, but on the basis of the station that the 'tie' would be required to receive.

A DIGRESSION CONCERNING

HAIR-CUTTING

I was surprised when after making a painful cut on my ear with his noisy scissors, a barber said to me, in a tone that was less apologetic than complaining, "If God has made one mistake it is this: he has fixed man's ear in the wrong place." I told him, "You ought to be thankful that he didn't make it bigger like that of an elephant." "But", he replied, "an elephant at least can fold its ears when it pleases." I thought about it. If man could fold his ears, the barber's work would have been much easier. As it now is, it is an inconvenient protrusion which keeps on jumping up in front of his scissors.

Coming to think of it, getting one's hair cut is not a very pleasant job. There is the constant danger of sustaining injuries if the barber is careless. And there is the case of a barber who quarrelled with a customer and instead of cutting his hair, cut his throat. Ever after hearing of that incident, when I feel the sharp edge of a razor on my face, I remember the words of Nym in *Henry V*: "... they may have their throats about them at that time; and, some say, knives have edges. It must be as it may."

But that is not the most unkindest cut of all. The barber has a more powerful and merciless weapon—his tongue having a capacity for promiscuous volubility. There is no region in the realms of human knowledge which is beyond the reach of his conversation. He will talk with equal complacency about atomic energy and the anatomy of a pig. He will talk about cabbages and about kings. His speech flows on endlessly; his vocal machine needs no fuel.

How often, when the barber asks us, "How will you have your hair cut, sir?" are we tempted to say, "In silence, please"! But in the barber's room silence is prohibited. His scissors makenoise; and he makes noise. And even his mirror seems to echo the noise, just as it reflects light!

In their attempt to escape this ordeal, the customers resort to various methods. Some go to sleep and try to escape into dreamland, only to be dragged away from there when the barber turns their necks as if the head were a detachable part screwed on to the body! Some others try to pore into a book with the same result.

If hair-cutting had been an experience without any mixture of pleasure in it, I would probably have put a stop to my visits to the barber long ago. There is one thing I like very much in the barber's saloon. It is like the silver lining in a cloud, like the oasis in a desert; it reduces the unpleasantness of the experience. What I like in the barber's is not the fan over my head—which sometimes sends a single hair on to my nose where it tickles my tender skin while I try to remove it from there by various contractions of my facial muscles and then give up the attempt until

my hands are free—nor is it the perfumes and cosmetics. It is the mirror that I like most in the barber's shop. It is the mirror that gives a touch of pleasantness to the experience. We all have a mixture of Narcissus in our temperaments. We like to keep on looking at our own image, whether it is in water or in the mirror. We admire our own features. We closely observe the gradual change that takes place in the appearance of our face. When we are looking at our image, we forget the barber, forget the noise, forget everything around us.

Once I had the misfortune to visit a barber, who kept no mirror in the room. I sat on a chair facing the wall. There was nothing in the room for me to look at. Occasionally the barber came in front of me and then I could see his stomach just in front of my eyes; and when he was not in front of me I could see the wall and that too was not a much better sight. It was a terrible, unforgettable experience. I will never go to that barber again. If I am forced to do so, I will certainly carry a mirror in my pocket at that time.

V. R. Nārayanaswami.

THE NEGLECTED

N. Ananthanarayanan, B.Sc.

(P. G. I. Br. iv)

He was dressed in torn 'khaki', unkempt hair and grizzly beard. On reaching us, he stopped suddenly and said something in a very low tone. I understood he was miserably hungry. Here was a man who wanted not coppers nor clothes, but food. Surely it would be inhuman to refuse. I asked him to accompany me.

We sat and ate but then I felt a little uncomfortable and embarrassed, because even the servers in the mess appeared to be rudely shocked at my guest's appearance. But I gained satisfaction as the man ate and slowly regained his spirits and began to talk. He was an ex-army man. He had lately returned from Dehra Dun and his step-mother's cruelty, his father's indifference and want of a job had driven him mad. He talked broken English and seemed to be completely worried in mind and puzzled about his future. His words were so incoherent that one felt he was well on his way to insanity. Insanity born of hatred and hunger! As we left the table I noticed that my guest had not left a single particle on his leaf, unlike the rich and sophisticated.

I rarely go to the Hall Prayers. That night, I made my friend wait on the corridor in a shady corner and made my way to the open theatre. I prayed for the man and men of his flock. When I got back, the Hall Peon was trying to get the poor man out of the Hall. Shame heaped on poverty!

Before my guest left, I gave him two four-anna pieces and requested him to trust in God (which he said he would) and try to get back into the Army. Suddenly he put forth his hand and said, 'Here are only four annas whereas you said you gave me eight.' There was only one coin on his extended palm, and it glittered under the lights at the main entrance to the college. We searched in vain for the missing coin. He must have slipped it in his bag, while I was unaware. Poverty, stark poverty, drives an honest man to utter a lie!

* * *

The scene shifts to my own dwelling. The subject is an old beggar whom all the neighbourhood knows. I did not miss him a single day and I wanted to know him. The roadside opposite my room formed his

dwelling place. He and his family sat there, ate there and slept on a pavement behind the road. The beggar has his wife, an elderly daughter who works in the city as a domestic servant, besides his other children down here—among them a boy of ten who is a terror to the school children. The old rascal would talk to you soberly in his spare time but when he picks a quarrel with someone, the whole locality would recoil to his thundering voice giving out abuse, calumny and filth. He would beg, eat and perhaps save something for the morrow but would not give a copper to his son. The boy would pay back his father in the same coin. Selfishness? No; it is a misnomer. It is self-preservation. Between quarrels and kickings, occasionally one could see reconciliation, the family group, the mother picking lice in her daughter's hair, the father giving advice and suggestions and the naughty boy tending the little babe. What do you call these? Squalor?

* * *

The last scene. At mid-day, through the lane at the right wing of my building, there appeared suddenly a big man, followed by his wife and his small son. He entered our building shouting 'Blanket for sale, lota for sale, lota for only one rupee.' That he was a refugee was apparent in his dress but at once I perceived also that he was not the false, begging type. He was a big man with flabby muscles and huge belly. There he stood sweating, holding forth a blanket in one hand and a lota in the other. There was hope and despair mingled in his voice which cried forth, 'Take this lota and keep it as a momento. I am from Karachi, sir; I am from Pakistan. We are Hindu brothers. God will bless you.' His wife was squatting just outside on the road, her face veiled, a picture of pity. The boy, not more than six, stood at his father's side. A torn shirt to protect India's child, our brother, from heat and cold, from sun and rain. I got nearer to the man. 'Sir, I am very hungry. Take this lota and give me a rupee. The boy, sir, he is more hungry.' He wasn't begging. He was selling an ornamental lota for the pittance of a rupee. 'Yesterday I sold my chappals and got food for my family, sir., He pointed to his bare feet.

'Well, if I give a rupee now, what will you do for to-morrow?'

'I will go to Krishnapuri where my wife's relatives are. I will work there and earn a living.'

'How will you go there? Where is the money for the railfare?'

'By the night train, of course, ticketless.'

Why should an honest man be reduced to the necessity of travelling ticketless? Can we not alter these things?

I bought the lota from him and was going into my room to take out the cash. Quickly a friend shot at me and said, 'Please do return that lota, return it. The mother is sobbing. She is asking her husband how she could from now on fetch water if her child gets thirsty.' I returned the lota to the good man and gave him my mite.

* * *

Such is India in 1951. This is, of course, one side of the picture. There is the brighter side. I do not deny it. I am, indeed, glad about it. And so do you feel. But the darkness is overshadowing the light.

Such incidents as are described above are taking place everywhere, every day, every hour, throughout our beloved land. HUNGER, DISEASE, IGNORANCE, SQUALOR, and the problem of the REFUGEES and the DISPLACED—these mountains obstruct our path. We have to get through them. It requires super-human energy.

But still, we shall succeed. India has always been a great nation and shall ever be. We shall not fail. If only we care enough and we share enough, we shall have enough.

* * *

Lead, Thou Kindly Light, Oh lead us on!

DECLARE WAR ON POVERTY

V. Ponnampalam

A poverty-stricken people cannot be free. Poverty reigns supreme in India and endangers her freedom. The world is moving towards another war—a war that will destroy all the great achievements of the human brain. But even war should have taught us a good lesson. It unites people under one banner to fight a common enemy. The goal is decided upon, the plan is worked out and the army is given its marching orders. Wars and crusades however are no substitute for bread and free life for the poor in India or anywhere else.

Why should not the Indian nation begin the battle for peace by declaring war on poverty? War, having destruction as its end, does a lot of construction too. Within a short time arms and ammunition are produced, factories crop up, the administrative wheel moves fast and the result is also amazing. Poverty must be declared the foremost enemy and the country's economy must be placed on a war footing not to destroy but to create, not to bring ruin but to give prosperity through a planned economy.

The nation's stock taking—the census undertaken this year—will be the best raw material for the generals of the army of reconstruction to work upon to fight poverty, provided the figures are reliable and accurate. Though the importance of such statistics should not be under-estimated it is to be kept in mind that 'We cannot feed a starving people on a statistical table' (Sir John Boyd Orr). Let us analyse India's present position with the help of a few facts presented by Dr S. Chandrasekhar in his book—'India's Population, Facts and Policy.'

India is 330 million strong but she is daily adding to that number a strength of 15,000. The poverty of the Indian masses can be attributed to the very high figures of the population. And the reduction of the population is considered to be an essential pre-requisite for the increase in the standard of living. It can be also argued that poverty is the cause of the increasing population, rather than the population being the cause of poverty. Some feel that India's rate of increase in population is very high. But this notion will be shown to be wrong when we look at the rate of increase of India's population on a comparative basis with that of the other countries. Agarwal in his article 'Indian Population' in the Indian Economic Journal points out that the rate of increase of population during the period 1872–1931 was nearly 30% in India: 77% in England: 113% in Japan; 115% in Russia and 125% in the U.S.A.

There are 600,000 villages supporting 88% of the population. Urban facilities are only provided for the fortunate people in the towns at the cost of the many in the villages. It is a note-worthy fact that only 2% of India's dwellings are 'pukka', brick-built houses, another 7% of them are well built 'kutcha' houses while the rest (91%) of them hardly deserve to be called houses. The towns and cities are marred by extremely insanitary conditions due to the existence of slums. It is estimated that nearly a quarter of a million people are homeless in Madras alone.

While the world forges ahead feudal India hardly begins to awake from her long slumber. According to the 1939 census landless day labour was 33 million strong or one third of those engaged in agriculture. Prof. Chandrasekhar describes them as 'Agricultural Serfs' or 'debt slaves.' But it is to be noted that out of the 432 million acres of cultivable land only 278 million or 64.4% are under cultivation. India's position as a predominantly agricultural economy is unquestionable but as politicians waver economists like Prof. S. Chandrasakhar sternly say with an unbiased mind that 'landlordism must be eliminated. The land must be re-distributed and the agricultural moneylender must be liquidated.' The land danger is too great. If politicians are going to act slowly, social events will react very

quickly and vehemently too. 'It has been proved in history that the mind of man cannot, in the long run, be habituated to tyranny; at some stage the slave revolts against his master' (Prof. Laski.)

It is a historic truth that without equality, liberty cannot exist. Equality is not similarity in treatment, but it lays emphasis on the point that there is no difference inherent in nature between the claims of men to happiness. Aristotle felt that 'the craving for equality is the most profound root of revolution'. India, though it ranks 3rd in natural resources and wealth (U.S.A. 1st and U.S.S.R. 2nd), is among the poorest countries of the world. With a per capita income of as. 4/- a day she is like a 'beggar sitting on a bench of gold'—while 1% of the population consumes one third of the country's wealth; another third of the population consumes 35% of the national wealth and 60% of the masses left to share the remaining 30% of the wealth.

If we are to take refuge in the old proverb by saying 'Health is wealth', here too we see that mother India is far far behind any modern nation. Out of 7,000 hospitals in India only 3,000 are standard ones. Out of these 182 are run by missionary bodies. Thanks to the Christian Missions: they are working to keep up the intellectual and physical health of our Nation 'in their selfless way' as remarked by our late Sardar Patel our Deputy Prime Minister. India is only producing 15% of our medical needs and has provided only 2 beds and one Doctor for every 10,000 of her population. Britain has one Doctor for every 800 and U.S.A. 1: 1,000. India has a strength of 3,390 nurses (fewer than in New York City). The ratio is 1 nurse: every 100,000 of the population.

This is the strength of our enemy--poverty. He is strong and deep rooted. It is for all, regardless of social status, religion or creed to unite under one banner and find a common plan of action against the dreadful enemy—poverty. Politics and politicians have a determining role and a final say in such questions. Let our Leaders take a leaf from the British Socialists in creating a 'New India' with the aid of a 'Planned Economy'.

INDIAN AGRICULTURE AND THE COLOMBO PLAN

In South and South-east Asian lands there has been a tremendous growth in population and this increase of mouths has not resulted in greater activity, in development and improvement of existing technicalities, but has gradually reduced the entire 570 millions of people who inhabit this region to conditions of appalling poverty uncomparable to the standards of living in many of the western countries. The average consumption in the east is approximately less than 2,000 calories while in the U.K. it is more than 3000 calories per day. The per-capita National Income in this area is about £20 while it is over 10 times as much in the U.K. and 20 times as much in the U.S.A. Further, with a wide variation of temperature the people have to suffice on less than 9 yards of cloth per year. These statistics no doubt reveal the utter poverty of our existing society. The average increase of population is about 2% per year while there is hardly any conceivable increase in our production of either consumption goods or capital assets. The adverse increase in population uncompensated for by an increase in our production is bound to lower the standards of life to an unimaginable degree. More than 80% of the people in these regions depend in some way or other on agriculture, and its development and extensive methods of cultivation would be of cardinal importance and it necessitates immediate execution.

In India 306 million acres are under cultivation, including both food and cash crops. This amounts to about a acre of cultivable land per head. In the U.S.A

there is about 360 million acres of cultivable land—about 2 acres of cultivable land per head of population. Further in India 73 millions are occupied in some way or other on the land, while in the U.S.A. only 8 million operate on the entire supply of the existing cultivable land. This no doubt reveals the intensity of cultivation in India, and the extensive nature of cultivation in the U.S.A. We should expect therefore a higher yield per acre in India, but actually the yield per acre is shamefully low. In spite of the more intensive application of man power our production of wheat is 600 lbs. per acre compared with over 1,000 lbs. in the U.S.A. Our cotton production is only 66 lbs. and in the U.S.A. it is over 313 lbs. This unequal state of production cannot be explained by the natural differences of soil fertility alone. It is the scientific and technical skill with which the farm worker in the U.S.A. cultivates his land, while in India the patriarchs of divinity, demons and fairies rule the destiny of the superstitious Indian peasant. In America, almost for the same acreage of cultivable land as in India, the capital investments are far greater. They, in the U.S.A., use about 2·5 million tractors while here there are hardly 10,000 tractors. Scientific knowledge, soil examinations, selective breeding are unknown to the Indian peasant. The use of fertilisers and the rotation of crops hardly even exist in the Indian agricultural system at the present time.

Thus the scope and need for development are great, the potentialities of our under-developed and mal-developed soil are also great. The Colombo Plan envisages the co-operative development of South and South-east Asian lands since they have problems of re-construction closely inter-related. During its 7-year course of operation it hopes to be able to compensate for the excessive fertility of the womb, and not let the standards of living sink further into the quagmire of human existence. In India, through improved technique and agricultural practices, through the use of better seeds and fertilisers, through irrigation and scientific research, it could secure an increase of over 8% in agricultural produce. In Ceylon, it would bring an additional 3 million acres under cultivation, thus doubling the existing cultivable land and in Pakistan an additional 7 million acres would be brought under the plough. The Colombo Plan contemplates a total expenditure of £1,868 million of which 32% would be spent on agriculture.

In India, the cost of development for the period 1950–'57, as estimated in the Colombo Plan, is about £1,379 million of which £456 million (33%) will be devoted to agricultural reconstruction. Its purpose will be firstly to increase the yield per acre, secondly to increase the local food production by improved forms of cultivation, and lastly to bring under the plough new lands. Of India's population only 108·9 million (34.3%) are economically active: of which 67% are employed in various ways in agriculture. An improved form of cultivation is bound to increase the yield with less application of human resources, which could then be freed for other purposes of production. In England and America less than 30% of the people are occupied in the Agricultural Industry thus freeing about 70% of the people for purposes of production in industry. The reverse is in operation here. If we could free peasants from their bonds on the land more labour would be available for production and more capital assets would be developed.

The total area of India is about 781 million acres of which 39% is under cultivation. The major products of the land are rice, wheat, jowar, and bagra. It is hoped to utilise the allocation of £456 million for the development of several multi-purpose schemes, for the extension of cultivation on reclaimed land, for the improvement of the existing technique of agriculture and farming, by the use of fertilisers and specialised knowledge and for the execution of a large number of irrigation projects.

The schemes of development include the Damodar Valley multipurpose project at a cost of £37.5 million, the Bhakra Nangal at a cost of £56.8 million and the

Hirakad project at a cost of £22.5 million. The Damodar Valley project is designed to harness electrical power as well, and thus make available cheap electricity for domestic and industrial purposes. It will also control the floods which cause untold destruction and misery, provide water in usable quantities throughout the year and will be utilised even for internal navigation. It will at the same time open for full dovelopment the richest mineral basin of India in the Bihar province. The Hirakad Dam will control floods of the Mahanadi and restrict soil erosion and will also provide water for the barren neighbouring lands. At Bhakra and at Nangal, dams will be constructed across the River Sutlej, a dam as big as the Boulder Dam in the U.S.A. This will open several million acres of arid land and provide an economically suitable settlement for the torrent of refugees. It will also provide cheap electrical power for Northern cities including New Delhi. These projects will increase the cultivable land by 6,000,000 acres and increase the electrical generating power by 708,000 kilowatts.

As a result of these plans, and an Integred Corn Production Plan, it is hoped to increase the foodgrains production by about 3,000,000 tons, and the cash crops by about 2 million tons.

This no doubt presents a very formidable task in agricultural reconstruction. It is a matter of life and death, a matter of profound importance. Unless the Government can undertake immediately the development of its natural resources with a view not only to maintaining the present low standard of life without lowering it further, but also to improve the standard of living in spite of the tremendous growth in her population, the country will automatically become most rife for political instability and insecurity and fall a victim to the atmosphere of Communism which pervades more intensely than elsewhere in South and South-east Asian lands. To cherish and preserve political independence and to translate it to the perception of the masses and peasants of India will be the task to which the educated and intelligent people together with their governments must dedicate themselves unflinchingly and earnestly, and this plan provides, though not completely, a signpost towards India's recovery.

P. N. FERNANDO.

JESUS CHRIST—WHOSE SERVICE IS PERFECT FREEDOM

REPORT OF THE S.C.M. TRIENNIAL CONFERENCE AT HYDERABAD

The train conveying the Madras delegation steamed into Secunderabad station at about seven in the morning. It was cold and most of us were feeling very exhausted after the previous day's journey. A good many had never attended a Triennial Conference before, and we had waited patiently for this opportunity. So in spite of all our exhaustion we arrived in Hyderabad with feelings of great expectation.

We were met at the station by volunteers and taken to the Osmania University which is a little out of Hyderabad City. The University buildings are constructed in an architectural design which is a harmonious synthesis of Hindu and Moslem styles. The hostels are provided with even better facilities than our halls in Tambaram.

We anticipated very cold weather and went very well armed with a lot of borrowed warm clothing. But the climate was not half as bad as we feared it would be. The climate was just fine and the University with its beautiful surroundings provided an excellent atmosphere for the Conference.

The Conference began on the 23rd December, and the day before, with its influx of delegates and its burden of minute-by-minute introductions which could never possibly be remembered, one felt quite lost

in the multitude; but we did eventually settle down. There were about five hundred delegates representing India, Pakistan and Ceylon.

The General Secretary, Mr. C. S. Paul, gave the opening address. The Conference proper began the following morning and the programme we followed for the four following days was much the same. We met at nine in the morning after breakfast for worship and a short period of Bible study. We were allowed an interval of an hour after that and we met again at ten-thirty in small groups for the Commissions. That went on for an hour and a half and we had lunch at twelve-thirty. We were free till three-thirty when we met for tea and at four we had the S.C.M. Technique meetings. Between five and seven we were allowed to play games and go on excursions. We had dinner at seven and at eight we met for the evening addresses. On the first day instead of the Commissions there was a public meeting at which Mr M. K. Vellody welcomed us and formally inagurated the Conference.

The theme of the Conference was: 'Jesus Christ—Whose Service is Perfect Freedom.' At a time when we are confronted with so many conflicting political ideologies promising men freedom it was a very thrilling thought that in the midst of all this conflict we were meeting to proclaim that true freedom could only be found in Christ's service.

All our work, worship and fellowship was a discovery of the S.C.M.—a discovery of its power to transcend national, racial and denominational differences. As we sat down for meals, as we walked those long distances between the dining halls and the meeting places, as we sang, played and travelled together we came in contact with people from all parts of the world. We quickly became firm friends and learnt much from each other. I just cannot describe how thrilling an experience it is to meet a person one has never met before and become thick friends almost immediately just because we are members of one fellowship; neither can I describe the conversation that went on in our room at the end of each day as we pulled off our socks and shoes and settled down to sleep.

We were beginning to view so many things from an entirely different perspective. We were beginning to see the true mission of the S.C.M. and our very attitude to other people was undergoing a change. A variety of Christian traditions was represented at the Conference and we were gradually learning to appreciate more fully various forms of worship and ways of thinking.

The Christmas morning Communion Service will be remembered by all who attended it for though so very beautiful in itself it made us painfully conscious of our many divisions and in a way I have never quite felt before I regretted that we could not all share fully in the service. The Federation meeting brought out the significance of the motto of the S.C.M.—ut omnes unum sint. As the Canadian and the Indian, the Englishman and the South-African and the many others spoke one after another we realized more fully the fact that the S.C.M. is a world-wide movement.

We were in Hyderabad for just five days and yet I feel that no report however long and however carefully written could do the Conference justice. All that I can say in conclusion is that it was a tremendous experience and that it will always remain a pleasant memory to all who attended it.

J. R. Ratnanayagam.

THE RURAL SERVICE LEAGUE

During the year under review the economic crisis continued unabated. The monsoon failed for the fourth year in succession. The Tambaram area was derationed making the rice position even more difficult. We wish the League could have been of more real assistance to the villagers during this trying period. We learnt a great deal about the sufferings of the rural people. We record our activities with a feeling that we must pledge ourselves to do even more next year to help the villagers to join in the struggle for a social and economic order based on justice.

THE ELEMENTARY SCHOOL

The school has now been given temporary recognition by the Government and it has grown steadily like a plant in the sun. We have a total enrolment of 126 pupils in five classes with four trained teachers to look after them. The buildings have increased from one to three. Thanks to the generosity of Mr K. Kuruvila Jacob the school compound has now got a wire fence and a gate which has enabled the pupils to maintain a school garden. The sight of gay flowers in those drab surroundings has been a heartening experience. During the last three months we were able to feed the children at midday with Ralston cereals, milk powder and multi-vitamin tablets kindly given to us by the Famine Relief Committee. We thank Mrs. Devanesen for supervising the cooking arrangements. The school has been equipped with tables, chairs, benches, cupboards and blackboards. At nights the children return to school to do their home work by the light of a Petromax light provided by the League. It is now quite an experience to visit the school with its neat and tidy compound and to be greeted by the children who no longer stand and stare but keep themselves busy with a variety of activities from spinning, under the tuition of a paid teacher, to gardening.

We are grateful to Mrs E. Rajaratnam, the Deputy Inspector of schools, Sri W. S. Krishnamurthi, Junior Deputy Inspector, and Sri Michael Raj, compulsory attendance officer, for their sympathy and encouragement. We must also thank the Staff Wives Fellowship of the college for their friendly interest and for distributing clothes to the children.

We want to develop the school compound into a village community centre with a dispensary and a reading room. A well is an urgent necessity now that we have planted a few trees and begun a garden.

THE WEAVING SCHOOL

We are glad to report that the weaving centre was put on a more business-like footing this year. Our great problem has been finding a steady market for our cloth which is not always of a very high quality as it is the work of boys and not highly skilled weavers. We have been fortunate in finding a business man, Mr S. Abdul Shakoor, who takes an interest in the centre and helps us to find a sale for the cloth. We have six looms at present. If the yarn position eases we hope to increase the number to ten. At present 13 boys are employed and paid at a piece rate. They are supervised by a competent weaving master and given a free midday meal.

MEDICAL WORK

The free distribution of medicines for simple ailments continued throughout the year under the leadership of Sri Arumainayagam. A medicine chest is kept in the village and a record is maintained of cases treated. We must thank Dr K. E. Thomas for his willing help in diagnosing and treating the more serious cases sent to him by the Rural Service League.

ENTERTAINMENTS

Apart from the Annual Entertainment in aid of our own work we are glad to report that we were able to give several entertainments in aid of other institutions. We have

helped the Government Tuberculosis Sanatorium, Tambaram, the Mahatmaji Yuvajana Samaj, St. Thomas Mount, and Y.W.C.A., Madras. We thank B. Muthunayagam and all who helped with these shows.

HOSPITAL VISITING

Our members paid several visits to the T. B. Sanatorium and distributed magazines. We must thank Mrs Mary Clubwalla for suggesting this form of service and the Seva Samajam for providing us with transport facilities. Our members participated in the selling of Tuberculosis Seals and flags for the Provincial Welfare Fund.

ILLINGAR KAZHAGAM.

The young men of the village led by Sri Arumugam, Sri Mahadevan and Sri Sooran, cooperate with us in many ways. On Republic Day the village young men staged a drama called 'The Widow's Tears'. Some one remarked that Shakespeare's tragedies suffered by comparison! We consider this a mild overstatement as the enjoyment of the village audience of a performance by their own young folk was very evident. We thank Paul Jeyaraj for the great pains he took in training the actors.

ADULT EDUCATION.

The League is taking an increasing interest in Adult Illiteracy and its eradication. During the second Adult Literacy Week in February a small exhibition of posters, charts and readers was set up in the Library Hall. Sri T. J. R. Gopal addressed the League on 'Adult Literacy and National Progress'. On Wednesday 21st February an Adult Night School of the Rural Service League was inaugurated in Old Tambaram by Sri A. G. Vila Roy, Adult Education Officer. We are grateful to Sri C. Raghunath, District Educational Officer, for presiding over the function. We thank Sri K. Narasinga Rao, Sri P. Alalasundaram, K. K. Chinappa and those members of the Tamil Sangham who helped us to celebrate the week.

ANNUAL SCHOOL DAY.

This last function of the year was held under the presidentship of the Hon'ble Mr Madhava Menon, Minister for Education. We are grateful to him and to Srimathi Ammana Raja who spoke on the occasion. We thank Mrs. E. Rajarathnam for distributing the prizes. We also express our thanks to the District Agricultural Officer for organizing an exhibition and the United States Information Service for their film show.

MADRAS STUDENTS SOCIAL SERVICE LEAGUE.

Our League played a prominent part in the formation of this new organization.

A one day conference of this body was held in our college when nearly 150 delegates were present. They visited our school. In the evening the M. S. S. L. was formally inaugurated by the Hon'ble Mr Bhaktavatsalam. Several of our members gained certificates after attending the Social Service Course of the Madras Students Social Service League.

DONATIONS.

The Halls have been contributing fairly regularly to our funds. We express our sincere thanks to Mrs Ida L. Chambers for her generous gift of Rs. 500. We also thank Dr Hogg, Mrs E. K. Macnicol, The Seva Samajam and Sri P. S. Varadachari for their kind donations.

VISITORS.

During the year the institutions of the Rural Service League had several distinguished visitors among whom were the Hon'ble J. L. P. Roche Victoria, Rev. Russell Stevenson of the I.M.C., Miss Hersey and Mr Gregory of CARE, Mr & Mrs J. J. De Valois, Mr H. R. Mills, Dr Mowat Jones and Mr & Mrs Bach of the British Council, Dr Marvin Harper, Dr & Mrs Estborn and Mr & Mrs Chartrand and Mr & Mrs Hagberg of the U.S.I.S.

THANKS.

We must thank all those who participated in the work particularly the Hall secret-

aries Arumainayagam and Robert Guruswami. We are grateful to the Principal, the Bursar and the Curator for their many bits of help. We must not fail to mention the almost daily help given by Sri Stephen and Sri T. P. John of the Bursar's office.

We conclude with a fervent hope that the Rural Service League will grow from strength to strength and that in the coming years there will be a stream of young men who will come forward to join in the struggle for a better India.

V. Ponnampalam
A. P. Appanna
Chandran Devanesen

Statement of Receipts and Payments for the year 1950

RECEIPTS

	RS	A	P	RS	A	P
To Opening Balance ...				183	0	9
Collections from the Halls:—						
St. Thomas's ...	217	4	0			
Bishop Heber ...	550	8	0			
Selaiyur ...	278	8	0			
Meston Villa ...	8	8	0			
				1,054	12	0
Advances from:—						
College ...	128	13	3			
Mr. Chandran Devanesen	200	0	0			
				328	13	3
Donations from:—						
Dr A. J. Boyd ...	35	0	0			
Mrs Macnicol ...	115	0	0			
Mrs Chambers ...	500	0	0			
Guild of Service ...	30	0	0			
Dr A. G. Hogg (£ 5/-)	64	9	0			
				744	9	0
Interest on:—						
Madhava Endowment Fund through the College ...	256	15	3			
Savings Bank account ...	3	5	6			
				260	4	9
Collections made for 1950 entertainment ...				1,222	15	0
Collections made in 1950 by Mr. Chandran Devanesen o/a 1949 entertainment arrears ...				51	0	0
To Government Grant received for the School...				771	12	0
				Rs. 4,617	2	9

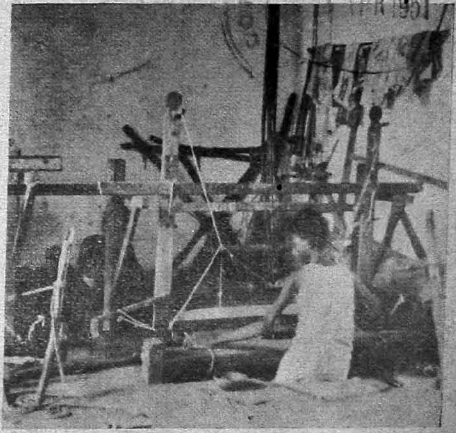
PAYMENTS

	RS	A	P	RS	A	P
By Advances to School o/a:—						
Teachers' salaries ...	1,456	2	0			
Books	51	0	0			
Tables, benches, black-boards etc.	87	6	0			
Inter School Treat etc. ...	13	0	0			
Fencing the Compound ...	34	0	0			
Feeding the children ...	40	0	0			
Third Hut construction ...	67	12	0			
Contingencies... ...	6	3	0			
				1,755	7	0
Advances to Weaving Centre o/a:—						
Salaries, wages etc. ...	1,211	8	0			
Medical Bills	19	10	0			
				1,231	2	0
Loans to Villagers ...				85	0	0
Loan refunds to:—						
Mr. Chandran Devanesen.	75	0	0			
College	320	0	0			
				395	0	0
Loud Speaker charges for the entertainment at the Sanatorium ...				15	0	0
Cost of a Medieal Chest ..				2	8	9
1950 Entertainment Expenses				658	8	0
By Sundries—						
Affiliation fee to M.S.S.L.	5	0	0			
Conference Fee ...	3	0	0			
Subscription to Adult Education Review ...	5	0	0			
Miscellaneous ...	5	0	0			
				18	0	0
				4,160	9	9
Balance carried over ...				456	9	0
				Rs. 4,617	2	9

Madras Christian College Rural Service League,
Tambaram, 19th Feb. 1951.

Chandran Devanesen,
President.

STUDENTS MAKING A PATH

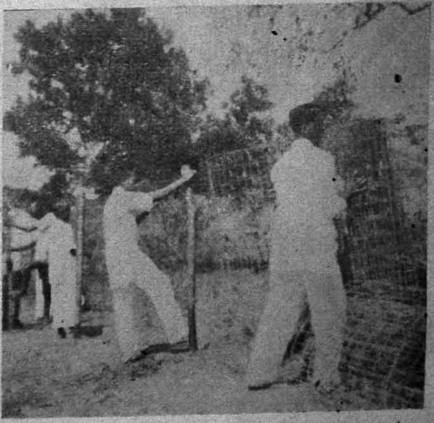


A PIT LOOM IN OUR CENTRE

RURAL SERVICE LEAGUE

MR MACPHAIL DISTRIBUTING CLOTHES GIVEN BY THE STAFF WIVES

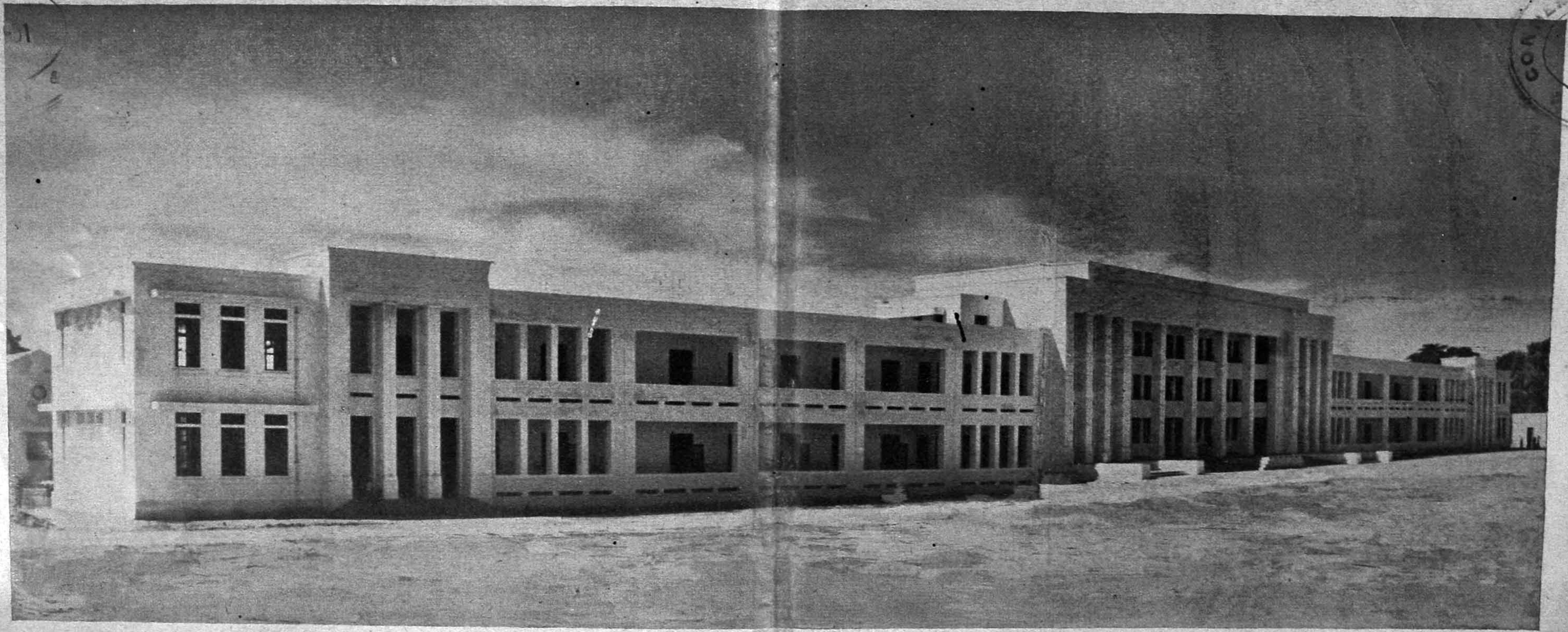
A VIEW OF THE SCHOOL



FENCING THE SCHOOL

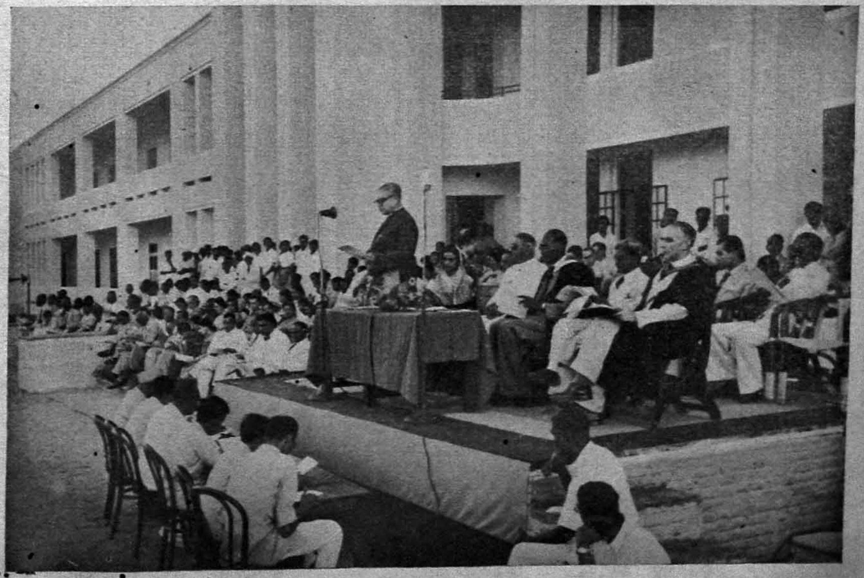
4 APR 1951

4 APR 195
MADRA

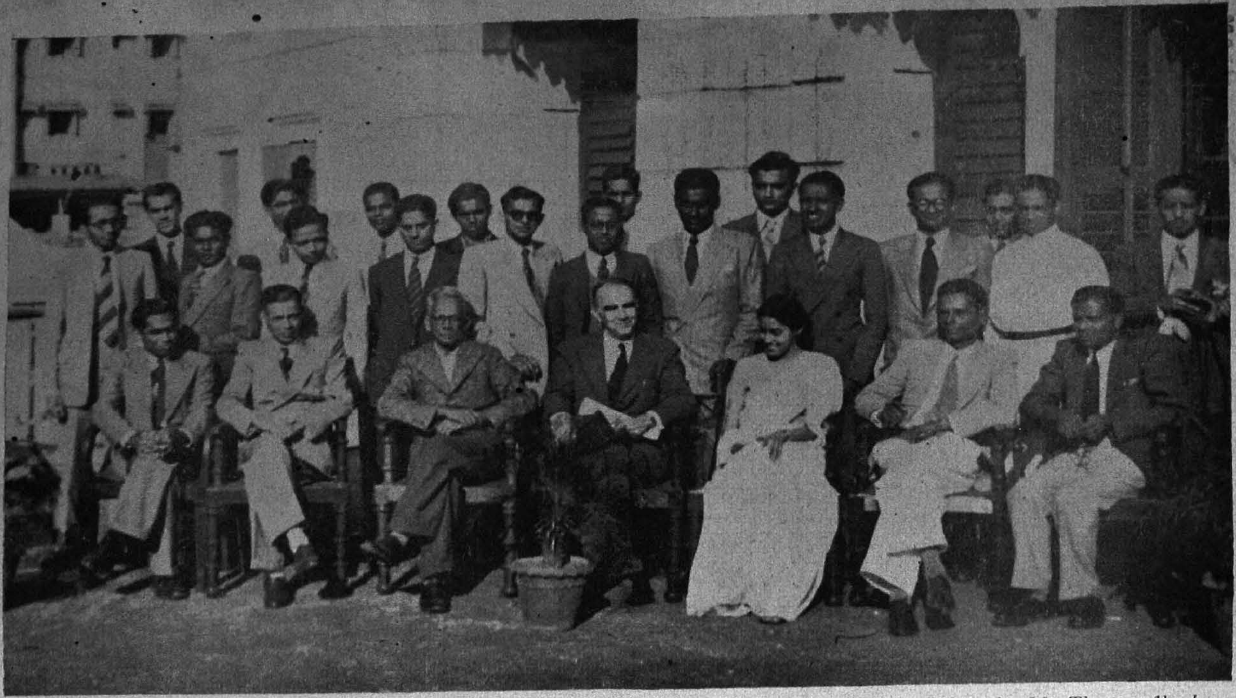


THE NEW SCHOOL BUILDING

THE GOVERNOR DECLARES THE BUILDING OPEN



BISHOP G. T. SELWYN READS THE LESSON



[Photo by Mr Thomas Abraham.

REUNION LUNCH IN CALCUTTA, DECEMBER 10TH, 1950

Sitting (Left to Right).—Messrs K. K. Mathen, C. K. Bhaskaran, N. Venkataraman, The Rev. J. R. Macphail (*Principal*), Miss M. Krishnaswamy, Messrs G. Parry and A. V. Menon.

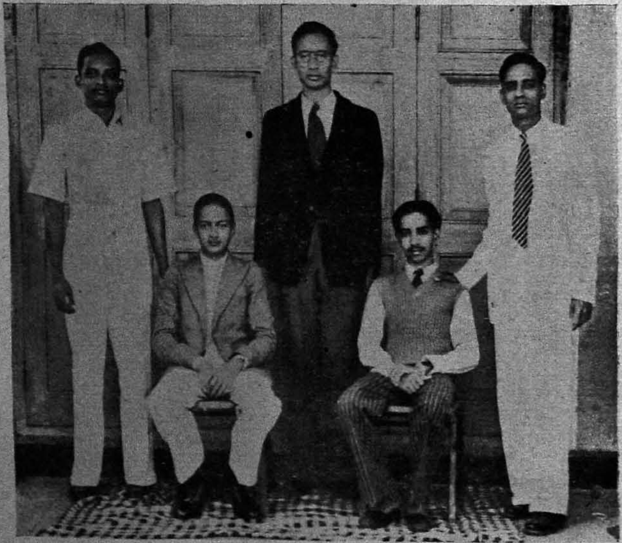
Standing (Left to Right).—Messrs K. C. Thomas, N. D'sena, Cyril Manuel, K. Jayaraman, M. Panchapa, P. Siromani, A. G. George, N. V. Radhakrishnan, K. J. Kuryan, G. Srinivasan, P. S. Bhaskaran, P. Samuel Philip, K. Padmanabhan, P. M. Mathew, Kuruvilla Thomas, C. K. Ramachandran, The Rev. C. A. Abraham and Mr A. Fenn.

THE OFFICERS, REGULAR STAFF, AND CADET N.C.OS. OF 'A' COY

CONNEMARA PUBLIC LIBRARY
MADRAS
4 APR 1951

1951

THE VICTORIOUS 'A' COY ATHLETIC TEAM



[Naveen Studio

THE COLLEGE DEBATING TEAM

Left to Right: Standing.—N. S. Kuppuraju (*Union Chairman*)
E. L. Samuels, S. Sivaraman

Sitting.—N. Nageswaran, V. R. Narayanaswami (*Union Secretary*)

THE NATIONAL CADET CORPS

The year under review has been an eventful one and it would take long to give a full account of our activities, and achievements, but in conformity with Army tradition, we shall be brief.

We began the year with the full complement of Officers. During the year Capt. S. Parthasarathy who commanded this Coy. for nearly fifteen years with outstanding ability left us in Sept. '50 to take up the post of Liaison Officer of the Junior NCC. His departure was a tremendous loss to the Coy. However we are really proud to state that he is one of the four officers to be chosen, from the NCC throughout the country, for that post. This Coy. owes a good deal of its consistent efficiency to his high sense of duty and rich experience. The traditions he has left behind will be cherished and carried on for years to come. Lt. Narasimhan another experienced officer also left the Coy. during the same month having accepted a Professorship of Physics in his native town of Salem. Lt. K. M. George the 2i/c was on study leave for a considerable time. The responsibility of running the Coy. fell unexpectedly upon the shoulders of the two junior officers Lt. M. Sargurudoss and Lt. C. H. Narayanan. With the co-operation of the Regular Staff, the Cadet NCO's and the other ranks they managed to keep up the high standard of efficiency of the Coy. Lt. George was appointed as the Adjutant of the Bn. and the O. C. of the Coy.

The recruitment to the Corps began early in July and within a short time the maximum strength of 156 was reached. The NCC is becoming increasingly popular and attractive and in the years to come there will be no difficulty in recruiting the right type of candidates. Lt. C. H. Narayanan and 40 cadets attended the Cadre Camp in September last. All the officers and other ranks of the Coy. attended the annual Camp held at Kajamalai near Tiruchirapalli. The tone, the discipline and the esprit-de-corps of the Coy. were of a high order all the year round. The cadets are provided with refreshment on parade days, and the attendance which was uniformly good even before the supply of refreshments is much better now. The cadets also draw an allowance of Rs. 2/- per month for washing and cleaning, and this enables them to come to the parades with a good turn-out. The University has recently given us an amenity grant of Rs. 400/- to provide an information and recreation room for the cadets.

The record of our achievements this year is as good as in the previous years. We annexed seven trophies at the annual inter coy. competitions held in camp, including the much coveted general efficiency cup, the Sir Arthur Hope challenge shield for platoon drill and guard mounting, sports cup and the tug-of-war cup—all these won for a second year in succession. Out of the 20 competitors that represented the 2nd Madras Bn., at the sports rally of the 2nd circle NCC held in January 1951, 10 were from this Coy. 51 cadets have taken the 'B' cert. examination and 4 the 'C' cert. and we hope that the results will be encouraging. 3 NCO's are applying for commissions in the army. One cadet has already joined the National Defence Academy at Dehra Dun.

Our thanks are due to the Officer Commanding the 2nd Madras Bn. NCC, Major K. V. Sankunny Nayar for all the help and counsel given to this coy. We thank the Principal for his interest in the Coy. and especially for placing at our disposal another room in the Arts Building to store our kit and equipment. This room will soon be converted into a recreation room, where we propose to instal a Radio and place useful magazines, journals and informational charts. We also express our sincere thanks to the Army Staff attached to this Coy., Jem. A. K. Nair, CHM. Abdul Jabbar and CHM. Neelakantan Nair, for the loyalty and earnestness with which they served the Coy.

K. M. George, Lt. (NCC.)
O. C 'A' Coy.

BOOK REVIEW

The People of God. C.L.S. As. 6. pp. 24.

The co-operative work of a group of members of staff at Tambaram has already borne fruit in the production of a two-year syllabus in Religious Instruction which has rightly won high praise. The volume under review continues that work with no less competence and should meet with the same acceptance both in and beyond the Madras Christian College.

The writers have had to face the difficulty that many of the students following this course will not have had the advantage of having studied with the help of the earlier volumes. They seem to have met this problem admirably and have produced a syllabus suited no less to the new-comer than to those who have followed the previous courses.

The selection of material and its presentation follows the deepest insights of present-day Christian thinking in respect of Biblical Theology, and the simple wording and economy of expression have been made possible only by wide reading and a firm grasp of essentials. There are several aspects of this excellent treatment which call for special mention.

A great point of value in the earlier courses was their integration by the concept of God's Promises. This emphasis is now carried forward and made explicit in a clear testimony to the unity of the Bible. Many courses of Scripture teaching are vitiated by the suggestion that the Bible contains two different religions, with the result that the student having 'studied Old Testament' in one year thinks to begin afresh another year with the New Testament. It is a great merit in this book to make it quite clear that the Bible is *one* book and that it records *one* story of Salvation.

In the preface it is pointed out that the emphasis in the teaching should be on historical reality and the material provided for study is apt to this end. This is of very great importance. Much harm has been done and many misunderstandings raised by teaching which suggests that Christianity can be summed up in a series of abstract propositions. Here the whole stress, and the proper stress, is on the mighty acts of God recorded in the total revelation, which culminates in the event of Jesus Christ and continues through the work of the Holy Spirit in the Church.

The over-all theme in which all this is comprehended seems to be exactly right. There are many aspects of cultus and idea which Christianity shares with other religions. Sacrifice, Priesthood, Scripture, Dogma, Ethic and so forth are not in themselves things apart, even though they have their own special content in Christianity. But the concept of *The People of God* is peculiar to the Bible and is at once the offence and the glory of the Christian Religion. The authors have done great service in seeing this and in presenting it so adequately.

We wish for this book the wide use which will be the only reward which the writers desire for their labours. They have provided for the teacher an excellent tool, sharpened by the clear comment and suggestion in the text. Would it be possible in a second edition to include references to books for the benefit of teachers outside Tambaram and to clarify the many allusions? And for the student, who after all is the principal character on this stage, an opportunity is provided for systematic and intelligent reading, going as far as advice can go, towards the supreme end of understanding the Scriptures.

A. M. W.

COLLEGE NOTES

F. W. HENDERSON

Frederick William Henderson died last November at Kirkmichael, near Blairgowrie, in Perthshire, Scotland, where he had lived and worked for the past twenty years.

He had been Professor of English in this College from 1909 to 1930, with an absence of four years during the war (1915-1919). For a number of years he was Superintendent of the School, and his portrait hangs in the Headmaster's room at Chetpat.

He was a large man, 6 feet 3 inches in height, and more than correspondingly broad-shouldered. We always felt his large-hearted character was outstanding: his sensitivity to the needs of the weakest and humblest, his desire whenever possible to keep himself in the background, his serenity in times of trouble: gentle and generous his nature always was.

One former student writing of Mr. Henderson, says: 'What a grand soul he was'!... He was without ambition, and wanted only to serve.' That chimes in with the impression of all those of us who knew him here.

He said very little about the other life he had had in the British Army in France, but we believe that there too he was one to whom his brother officers turned for inspiration as well as for help with their gunnery calculations. It was known that he had been through much hazardous fighting, and that his health had been undermined—this was part of the reason for his early retirement from the college.

He retired early enough for a 'third life', for he was for twenty years the minister of a parish in Scotland. His home there, in the remote village of Kirkmichael, is on no important road, and is visited by a bus service about once a day. No one is likely to go there who is not either visiting the village itself or going through to see the beautiful country in the mountains. It is a beautiful valley he was in, with a river rushing over boulders a few yards below his house, and fertile fields stretching up the valley, and many pine trees on the lower slopes of the hills whose tops are too bleak for trees. The valley was his parish, and its few hundred inhabitants became all personal friends to him and to his wife, and their work it was to bring counsel and light and the spirit of unity.

They became interested in the history of their valley, which two hundred years ago had held far more inhabitants—the ruins of their houses are still to be seen in some places. The hardship and suffering that such over-population involved have left behind the tradition of heroic facing of all difficulties, standing together to bear, to withstand, to overcome suffering.

One of his last sermons in College Church was on the words of our Lord Jesus: 'Unless you become like little children, you will not be able to enter the Kingdom of God.' Hearing him, we felt that his own life showed the qualities he spoke of—eager to serve in whatever place or capacity, seeking, even, the place that others think remote and lonely, there to do a work the fruits of which will last for ever.

K. MATTHAN

We record with regret the death, on Sunday 4th Feb. 1951, of our old student Rajamantrapravina Dewan Bahadur K. Matthan. He was born at Edathuva a few miles west of Tiruvalla in 1877, educated in Kottayam and at Madras Christian College.

After leaving college, he became a probationary Assistant Commissioner in the Mysore service in 1897 and in 1906 he became Under Secretary to Government. He served in various districts and was Special Magistrate of the Kolar Gold Field in 1912 and then he was Deputy Commissioner.

In 1918 he was Food Controller of Mysore, then Commissioner of Income Tax, Chief Secretary to Government, and Director of Public Instruction. After nearly

30 years of valued service he was made a member of the Council and he was First Member when he retired in 1936.

In addition to the heavy work entailed in his official duties he found time to give his help in civic life and in the Indian Red Cross, and he constantly upheld the Christian standard of integrity in public life in a way which makes his alma mater justly proud of her son.

He was for several years a member of the College Council, and helped us greatly with his counsel.

To his family, and particularly to his three sons, Jacob Matthen, Kurian Mathen and Matthen Matthen, who are also old boys, we extend our sympathy.

NEWS OF OLD STUDENTS

C. D. GOPINATH, who was with us the last two years, has been doing extremely well at cricket. In a recent issue of 'Sport and Pastime' there was the following reference to him.

'In the long history of Madras cricket, no one has scored so many double centuries and centuries in any one season as C. D. Gopinath has done during the present season. Not even A. G. Ram Singh, who for over a decade, dominated cricket in Madras, has to his credit a double century, and in point of consistency of scoring, Gopinath has emulated the Sikh, who incidentally has had much to do with this player's progress.

'Gopinath opened the current season with a brilliant 228 not out and followed it up with 220 not out, both scores being made in the zonal tournament conducted by the Madras Cricket Association. From then on almost every innings saw him play a long knock of over 100, and up-to-date he has eight three-figure scores to his credit. He showed such wonderful form in local cricket that his success in the Inter-University tournament at Hyderabad where he made 195 against Andhra, 141 against Bombay, and 72 against Mysore, became logical. However, if there had been any doubts of his true worth that he is not merely a club cricketer and he belongs to a higher class than even the University cricket, he dispelled them by his excellent knocks against Commonwealth cricket touring team. Playing for the Combined Universities XI at Calcutta, he made 93 and 32 and a sparkling 85 for the Governor's XI at Madras. These innings no doubt impressed the tourists so much that Ames, their captain, declared that he was looking forward to hear more about him in the near future.

'It was only last season that this young player came to the forefront. He played with such conspicuous success for the Madras Christian College in the Inter-Collegiate League that he was chosen to play for the Madras University. In the fixture against Ceylon, he was unlucky to get out in both the innings when in sight of his 100 for scores of 81 and 90. These two knocks established him as a cricketer of high promise and he was promptly chosen to play for the state against Mysore in the Ranji Trophy. If achieving a 'pair' is also the hall-mark of greatness, Gopinath had that unique experience, for in his very first match of importance, he was out for a blob in both the innings against Mysore. Fortunately this did not damp his spirits, but on the other hand it made him apply himself to the game with even greater determination.

'Gopinath plays the cut and drive with charm and hits the ball very hard indeed. As he is tall, he makes good use of his reach in his defensive play. He is an outstanding product of the Madras Coaching Scheme and it is to the credit of A. F. Wensley and A. G. Ram Singh, that they have given to Madras Cricket a player of his calibre. Much was also done for him by V. Pattabhiraman, who runs the Varsity Occasionals and the Egmore Recreation Club, for whom Gopinath plays. He was born on March 1, 1930.'

He played for India in the Final Test at Kanpur and made 14 and 66 (not out). These are remarkably good performances on a wicket 'which was like powder'. Leslie Ames, the captain of the Commonwealth Team and one of selectors for the M.C.C., and George Duckworth, the manager of the team, have been impressed by his Cricket

and have been saying, over and over again, that he has arrived to stay.

T. R. LAKSHMANAN has received the Degree of Master of Science in Chemical. Engineering of the University of Southern California.

Shri: M. V. RENGACHARI, M.A., Asst. Secretary to the central Finance Ministry, returned from London recently, where he had been sent to study the working of the Exchequer.

Captain R. NARASIMHAN, M.B., B.S., who was till recently Bacteriologist to the C.M.C. Hospital Vellore, has been appointed the chief Bacteriologist to the New Delhi Tuberculosis Clinic.

K. K. MATHEN (B. A. 1934-36, M. A. 1936-38, Mathematics) has received the degree of Master of Public Health from Johns Hopkins University, Baltimore, U.S.A. He is now appointed Professor of Vital Statistics in the All-India Institute of Hygiene and Public Health, Calcutta.

T. N. RAMAMURTHI (English Honours, 1924-27) now Agent of the Central Bank of India, Coimbatore, writes on the occasion of the Diamond Jubilee: 'Character formation has always been the chief aim and object of the Madras Christian College. All of us are proud of the fact that we were privileged to derive the spiritual inspiration and mental exhilaration which our College alone could give in such abundant measure. I have known many instances where a person desiring to dissuade an Old Boy of the College from doing a dishonourable act would merely say: 'A Christian College man should not do this,' and such a remark often worked a miracle and did wonders.'

'ARMS AND THE MAN'

On the evening of February 16th, the College Dramatic Society presented 'Arms and the Man'; a wise choice, since the author, G. B. Shaw, has recently been much in the public mind.

The play was skilfully cut, and was presented with that 'slickness' always achieved by the Producer (Rev. J. R. Macphail). The audience had no dull moment and at the end of the play probably felt a little like Oliver who asked for 'more'! It was a very appreciative audience, which took up with obvious delight the witty sallies so typical of Shaw.

Mrs. Petkoff (Miss Mary Abraham) and Major Petkoff (J. R. Ratnanayagam) were convincing as middle-aged Mamma and Papa. The former rose magnificently to the occasion in one of the 'moments' of the play: looking deeply shooked at the crime of which she was guilty. Raina (Miss Arunthathy Kanagathungam) while perhaps not exploiting all the possibilities of her part, was competent enough and stayed the pace well. Major Saranoff (Jacob K. Jacob) might also perhaps have done more with his part, had he given us a little more of the stiff-back, heel-clicking type of military fanatic; but his acting was pleasing. Louka (Miss Shanti Viswasam) was very good—clear voice and crisp manner. Her costume, too, charmed the eye, and suggested the environment better than any other detail of the production. (The women actors are to be congratulated upon contriving their costumes so well.) The Russian officer (J. Chandy Jacob) did well in his small part, and Nicola (R. Z. Kothavala) was delightful, showing a fine understanding of the humour of the situation.

As for Captain Bluntschli (E. L. Samuels), his was very clever acting indeed. He created a really subtle character, with wonderful light and shade. Much of the success of this performance was due to him.

As to production, the inset stage was a good idea, from the point of view of audibility as well as appearance. (The microphone behaved so well that the audience was only now and then aware of its presence.) Raina's bedroom did not seem to have quite enough of the feminine touch (even for the Balkans.) But the austerity of 'the library' was deliberate, and a good joke.

A very good show!

COLLEGE DAY

The Diamond Jubilee Celebrations of the College Day Association began with a festival cricket match, former students

versus present students, twelve a side. The former students batted till the lunch interval, and present students for an hour and a half after lunch.

Former students: 227

N. Kannaiyaram 120 retired (11 fours)

G. Zachariah 28

V. K. Visvanathan took 5 wickets for 32, and D. Narayanan 2 for 34

Present students: 180 for 5

C. C. Bonjour 93 (12 fours)

C. Philip 30

C. D. Gopinath took 2 for 20.

The former students team also included Rao Sahib K. S. Ranga Rao, convener of the Diamond Jubilee Committee; Messrs Ananda Rao, the wellknown commentator, John Chandy, District Traffic Superintendent of the M.S.M. Rly.; Dr. Harry Paul, of the Leprosy Sanatorium at Chingleput; Sqn.-Ldr. H. P. Gnanaolivu and Jeyasingh Thomas.

Mr. V. Chakkarai Chettiar, a former Mayor of Madras, watched almost the whole match.

In the evening it was a great privilege to hear from Dr John Matthai an address giving us so much of his wisdom and experience. He gave us a scholarly survey of the fifty years through every part of which he has himself been a careful and critical observer of national and world affairs, and for some years of which he has himself been at the very centre of national enterprise.

He said that when he was a student, the British Empire was at the zenith of its power. There was security throughout the country in a way which was quite unprecedented. But although the imperial service had a very high order of efficiency, they were aloof and impersonal.

Dr. Miller at that time was nearing the end of his active life as a teacher, but he knew each student by face and by name, even in a class of over 200, and cared for them individually. They received a general education which was an excellent preparation for their life and work. Dr. Matthai urged that the first degree should be in humanities, with specialisation in sciences, etc., only after that.

Speaking of the move towards socialism in the country today, Dr. Matthai said that in large-scale industry there is little effective difference between nationalised and private enterprise, since in each case the bulk of the financing is by small investors, and the administrative control is by experts.

Democracy works by a majority vote; but the essence of democracy is not imposing the will of a majority on the minority. True democracy gives weight to the opinions of all the people, and gives expression to the judgments of the whole people.

He was a little disturbed by the tendency towards the excessive exercise of executive authority. India's tradition, over many centuries, had been for a large degree of local self-government for village communities, and this the British regime had done little to upset, as it is now being upset by the move towards centralisation.

Dr Matthai ended with a survey of the food and finance position, and expressed his confidence that the acute economic difficulties of the present time will be overcome within a measurable period of time. The turning point is indeed at hand.

Other speakers included the Hon. Mr B. Gopala Reddy, Finance Minister in the Government of Madras, who compared what he saw of life in the Christian College with what he himself had learnt at Shantiniketan, under the great Rabindranath Tagore. He urged that more students should join the defence services.

Mr S. K. Chettur, Revenue Secretary, spoke with warm gratitude of the religious instruction he had received in the college. He had learnt almost the whole of St. Matthew's Gospel by heart. He had in consequence come to a sounder understanding of his own Hinduism.

Scripture classes were thoroughly enjoyable classes. They served as an instrument for the interpretation of history, as well as current events, in the light of the spiritual background of man.

Other speakers included Mr O. Pulla Reddi, President of the College Day Association, and Mr. K. Sanjiva Kamath, one of the Vice-Presidents. Messages were read

by Mr K. S. Ranga Rao, one of the Secretaries, from the Principal, Dr. Boyd, from Dr C. R. Reddy, Dr V. K. John, Prof. S. R. Ranganathan, and Messrs R. V. Krishna Ayyar and D. C. Kothari.

It was a grand climax to the Day, when our athletes returned from the Inter-Collegiate Sports, bearing the shield with them. There was great excitement and cheering as they entered the college grounds, but when they found that the meeting was still going on, they came in quite quietly and waited till the end of the meeting, though it must have been very difficult to hear anything at the back of the Hall—the microphone was not being rightly used. At the end of the meeting A. S. Chandrapandian and J. B. Joseph brought up the shield and received a great ovation.

WOMEN STUDENTS

It is cheering to have such good news of progress among our women students, both resident and non-resident, from Mrs Kibble, the Warden of Women Students, and of the students resident in the Hostel from Miss F. P. Velu, Warden of the Hostel. It will be seen from the report of the Women Students' Union that the women students as a whole now look to the Hostel as the centre of their life together, in much the way that the Halls are such centres for men students.

They modestly suggest that the entertainment they gave in the Second Term will not compare with a Hall Day. We certainly hope that they will never seek to imitate a Hall Day, but will continue to do well the things at which they excel. But is it notable that although they are fewer than fifty in number, the women students were able to produce an entertainment which did compare favourably with the usual entertainment produced by a Hall with 400 members.

THE MAGAZINE

This number of the Magazine owes a great deal to the excellent work of T. V. Dattatreyan, as literary editor.

We are also indebted to M. Unnikrishnan, J. K. Jacob and K. S. Sundararama Sarma, as news editors and reporters.

It is good to have poems by four present students. Two of them have had poems accepted by bigger journals, in India and abroad.

We gratefully acknowledge the permission of the Station Director, A.I.R., to print three broadcast talks by members of staff.

LATE NEWS

We regret to record the death of Dr C. R. Reddy, for many years Vice-Chancellor of the Andhra University; and of Sir Ahmed Hussain Amin Jung Bahadur, formerly Chief Secretary to the Nizam's Government: and of Mr A. Ranganatha Mudaliar, formerly Minister in the Government of Madras. Fuller notices will follow in a later number of the Magazine.

We congratulate those of our old students whose names appeared in the successful list for the Indian Administrative Service. We have noticed the names of C. S. Venugopala Rao, K. S. Rangamurthi, K. Raghavendra Rao, F. G. Jilani, John Zachariah, M. Prem Kumar, V. R. Laksminarayanan, K. J. Kuriyan, R. S. Hensman, U. N. Narayana Rao, and P. O. George.

HALL REPORTS

ST. THOMAS'S HALL

The second term of this year saw a change in our Hall politics when we introduced a new constitution and we elected K. S. S. Sarma as the first student-speaker of our Hall Parliament. Life became more democratic. The next important function was the Terminal Entertainment which went off very well.

The third term began with the preparations for the Hall Day. On 26th January, Republic Day was celebrated with solemn dignity; the warden hoisted the flag. The next day was the most momentous day in our Hall life—the Hall Day. The function went off very well and was proclaimed as one of the best Hall Days ever attended. In this, St. Thomas's Hall's tradition of keeping up a high standard of entertainment was maintained. This was partly due to the energetic Entertainment Secretary, B. Muthunayagam, and the enthusiasm shown by many old and new actors. Much praise is due to E. C. George and Ramachandra Menon for decorating the Hall in grand style.*

To our disappointment our Hall lost the second place at the sports by hardly a point. We are now eagerly waiting to see whether we shall regain the Basket Ball Shield, which we lost last year.*

Our best wishes go with the senior students of our Hall.

S. SURYANARAYANAN,
General Secretary.

BISHOP HEBER HALL

It is a pleasant duty, perhaps, but an extremely difficult one, to tell you in the course of a few minutes all that has happened in Heber Hall in a year, which has been so crowded with many unforgettable incidents. I must, however, give you a picture of what is, essentially, a distinctive quality of life in Heber. Many residents have gone out and many others have come in their places. And similar changes have taken place in the teaching staff, but the Heberians live as a family, studying, playing, worshipping and, above all, growing up together.

It is usual to expect, in a report like this, a record of academic distinctions. But we Heberians have always felt that it is more useful to drop a first class in the examinations for the sake of a fuller life in the college. And I am proud to report that we have been successful in our search for the fuller life.

But we have always been conspicuous on the sports-field, though, probably, after hearing all that you have heard about Heber Hall food, you would naturally expect to find half-starved Heberians dragging themselves about in the campus. The usual talk during any Inter-Hall athletic season is: 'Can we defeat Heber?' Among various other things this year we won the Inter-Hall Shield, which had ventured on an excursion to a neighbouring hall. The record for the hundred metres was equalled by C. W. B. Kanakathungam, often known as C. W. K. Bonney who, also, represented us in the Madras University Athletic team. We do not know how we are going to replace star athletes like J. B. Joseph, who, incidentally, is the champion athlete of the college, Roy Fewkes and Sam Thomas. The college Hockey, Cricket, Soccer, Volleyball and Boxing teams are all captained by Heberians. Cyril Philip, the Vice-Captain of the University Hockey Team and J. B. Joseph, the Captain of the University Volleyball Team, are members of the hall.

We have been active in other spheres also. J. Arumainayagam, the Secretary of the Rural Service League, has, in addition to his usual duties, been officiating as Rural Medical Officer. The Atheneum and the Dramatic Club have come to stay. We are greatly indebted to Professor Chandran Devanseen for all that he has done for us.

Indoor games have been so popular that

* It has been won.

some of our staff members come in and share in the games. We wish, however, more of them would come into the Indoor Games Room, not to remind us that we are infringing on study hours but to tell us how to play or at least give us a chance to teach them.

Now a word about our Old Boys. The Indian Administrative Service still depends on Heberians to fill up their ranks. Mr. Bhiman is the latest recruit from Heber. Quite a bunch have appeared for the recent examination. Dr Eric Philip, the Olympic athlete and Rhodes scholar, is back in Madras with the Burmah Shell Co. Sundar Clarke, the non-resident resident, is now preparing for priesthood. Some of our pocket edition graduates like Venkataramani, finding themselves not big enough for a job, have gone as far as the north to pursue higher studies.

There have been as usual a few changes on our staff. Dr Gandheker retired from the College but we are happy that he is still with us in Tambaram. Lieutenant Narasimhan has gone back to his home-town Salem. Messrs. Sethu Rao, Vythilingam, Samuel, Bhiman and Raghavendra Rao have also left us. Messrs. Giles Lal and P. A. Warrior have launched themselves into the field of matrimony and thus are no longer in residence. We wish to offer these gentlemen our thanks for their varied help to the Hall in the past and wish them all happiness in their respective new spheres. We have had the pleasure of welcoming into our midst the following resident staff members—Messrs. Dorairaj, Venugopal Rao, Karunakaran, V. Subramaniam, K. Subramaniam, Balakrishnan and Seetaraman.

No report on the life in Bishop Heber could ever be complete without a mention of our Chapel, and the all-important part it plays. It symbolises what we stand for. We begin and end the day in the Chapel. The Sunday Services are particularly beautiful and popular. On all important occasions we go to the Chapel for an act of worship and thanksgiving for all the good things in life we are privileged to enjoy. And it is not for nothing that we have the words *Nisi Dominus Frustra* as our *motto.* As a token of their affection for the Hall, the residents of this year have made a gift of a beautiful marble Coat of Arms, which now adorns the entrance to the Hall.

And so Heber marches on into the unknown future proud of her sons who have gone out and full of hopes for her sons who are here now and will come hereafter. For the passing of a year is but the birth of a new one.

C. W. K Bonney,
General Secretary.
6-2-51.

SELAIYUR HALL

Report by the General Secretary at the Hall Day, February 3, 1951

It gives me great pleasure to welcome this distinguised gathering to-day and present this report on the various activities of the Hall during the year under review.

In this report, I shall attempt to stick closely to the unpalatable truth.

In the setting up of a gymnasium in the Hall, Selaiyur Hall may take just pride, reflecting that it has pioneered this development, but there is no room for self satisfaction. The majority of the members regard the Gymnasium with the indifference they preserve for all things that do not enter into the tiny orbit of their little ends.

The Hall's torpor, normally indifferent to anything but cricket scores, was broken by the session of a Mock Parliament, engineered by the stimulating Professor Devanesen. The Radical Socialist Party captured the government and moved a Bill to expropriate all landowners. The House 'in the maturity of its wisdom' threw the bill and the scandalously doctrinaire government unceremoniously out.

Throughout the period under review our members continued to feed much better than their unfortunate brethren with food secured from various sources. I am proud to say that at least 75 members had uneasy consciences, which they tried to placate by

foregoing their midday meal by turns for the benefit of the Hall servants. We have made some attempts at ameliorating the social chaos of Tambaram rural side under the able leadership of A. P. Appanna, with his urbane qualities. Subscriptions to the rural service league improved from Rs. 100 to R.s 500 under his regime.

There were moments when the standard of debates rose to remarkable heights. On rare occasions the debates became childishly distracting, noisy and lacking in intellectual content.

In sports we did fairly well with a few outstanding performances. 'Sathy' James represented the University for the second year in succession in football. The Captains of the tennis, football, and basket ball teams of the College are distinguished residents of this Hall. As for cricket, Selaiyur can think wistfully of past days: the times when C. D. Gopinath, Kannayiram and Chinnadurai ornamented this Hall are gone ; however Chandrasekharan and Narayanan are in the University team. Purushothaman punched his way into the University boxing team that went to Ceylon.

An exhilarating and wholly welcome addition to our Hall is Dr J. D. S. Paul. His enthusiastic reception of new ideas, his insistent emphasis on change, make him an invaluable addition to our Hall. But he is unfortunately incomprehensible to the prematurely conservative and intellectually vitiated product of the Indian Universities. We are proud to say that Messrs George Isaac and M. Abel, distinguished old members of this Hall, joined the staff of the College. The administrative services of the country have been reinforced by the addition of Messrs Chandrasekharan and Bhima Rao, erudite Staff members of this Hall.

The Secretaries of the Hall carried out their duties to the best of their abilities.

In conclusion I should like to state that our Warden, Mr Macnicol has carried out his duties in his own completely inimitable manner. It is generally held that there is no Warden in Tambaram to compare with him. May I heartily endorse this sentiment.

Ladies and gentlemen, finally I take this opportunity of thanking all those who have accepted our invitation, more particularly our Chief Guest, charming Mrs Batliwala.

P. P. KUSHALAPPA.

COMMEMORATION DAY SPORTS

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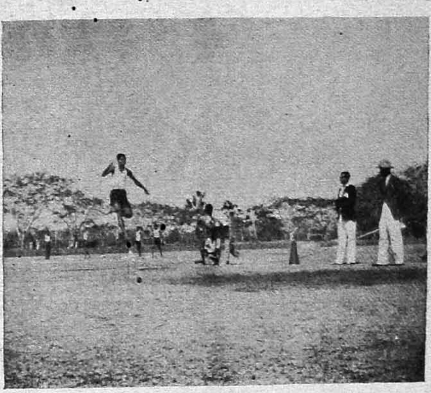
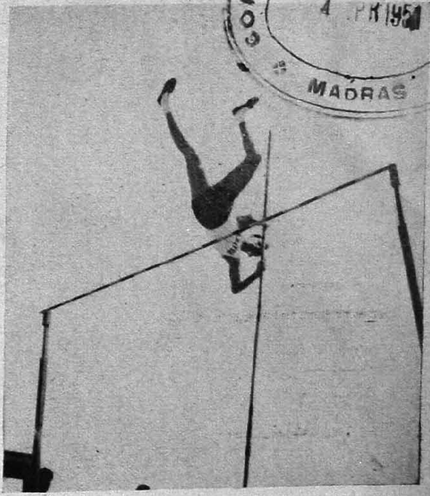
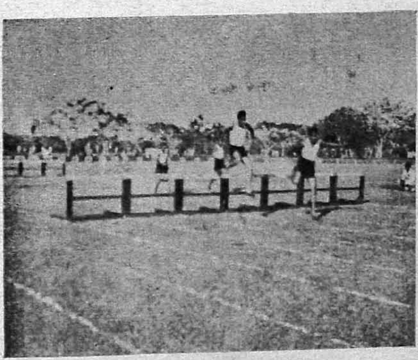


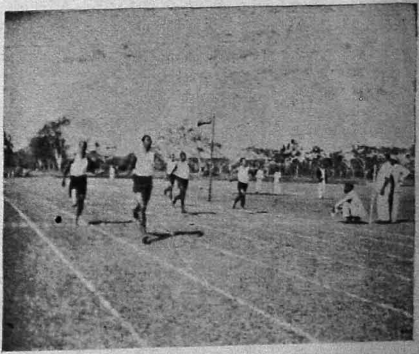
Jeyaraj Theophilus wins the Long Jump



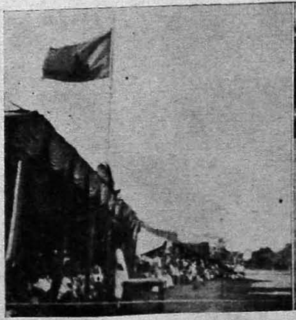
A. R. Rasaiah wins the Pole Vault



H. Chackrapani Rao clearing the last hurdle in the 200 Metres Hurdles



C. John at the finish of the 400 Metres, after J. B. Joseph had passed the tape



The pandal where the Hon. Mr Justice Rajamannar distributed the prizes and certificates

A. S. Chandrapandian throwing the discus
He made a record throw

Hop Step and Jump

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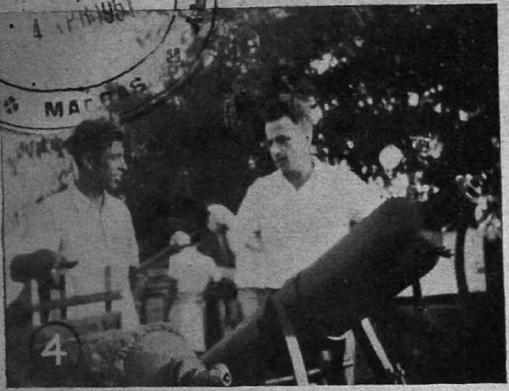
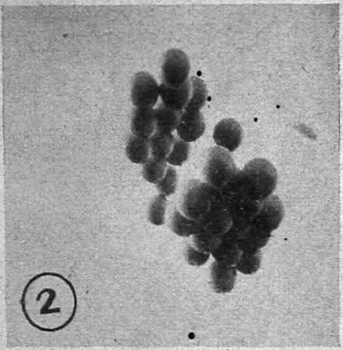
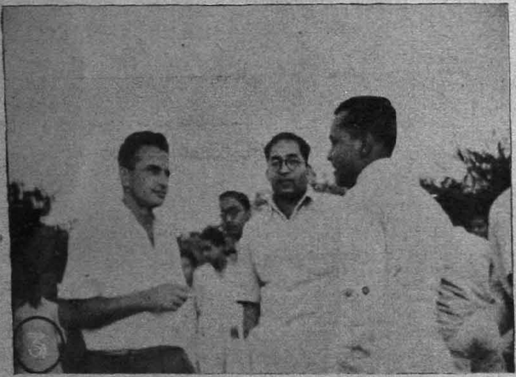
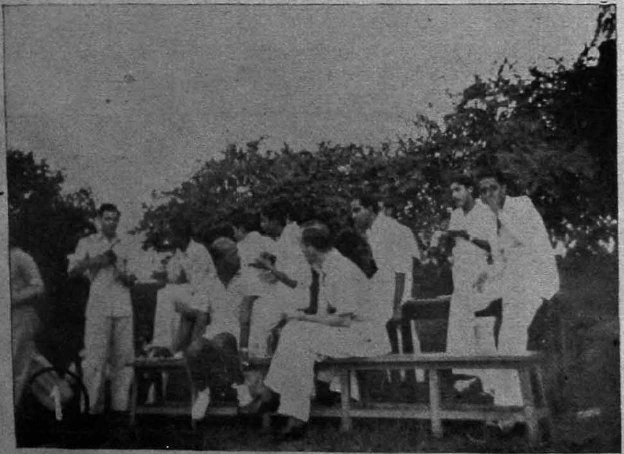






COSMIC RAY FLIGHTS

THE BALLOONS ARE TETHERED (12) TO NYLON ROPES AROUND THE CRICKET FIELD. AS ONE BY ONE THEY ARE RE-LEASED, THEY LIFT THE PARACHUTE (11) AND THEN THE REST OF THE LOAD. AS WE WATCH FROM THE DARKNESS BELOW, THE BALLOONS SAIL UP INTO GOLDEN SUNRISE (10). A SMALL GROUP OF BALLOONS CARRIES UP THE GONDOLA, AND, BELOW IT, THE BAROGRAPH (9). THE BALLOONS MIGHT UP STRUNG OUT SINGLY, OR IN GROUPS OF THREE OR FOUR (7), OR MASSED IN ONE OR TWO LARGE GROUPS (2, 6 AND 8)



DR PETERS (4) AT THE HYDROGEN CYLINDERS WITH MR KRISHNAMURTI OF THE TATA INSTITUTE AND (3) SAYING GOOD-BYE TO DRS ANANTAKRISHNAN AND THANGARAJ. SOME OTHERS AT THE FAREWELL PARTY ARE IN (1). DR TAYLOR HAD HAD TO LEAVE FOR BOMBAY EARLIER.

[Photos by D. Lal, and others of the Tata Institute of Fundamental Research

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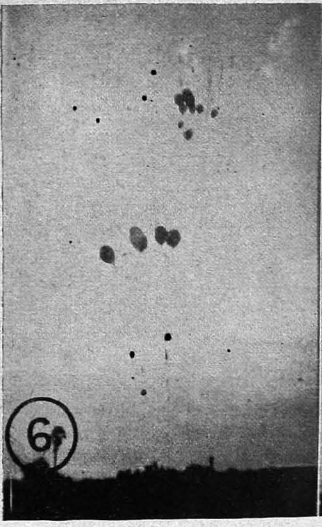

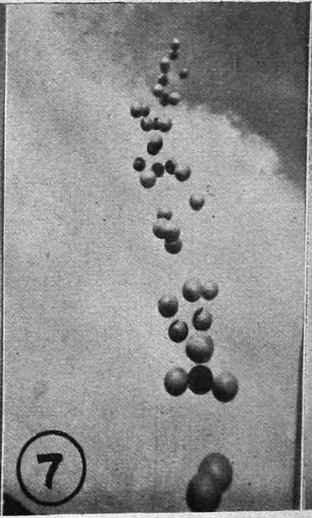

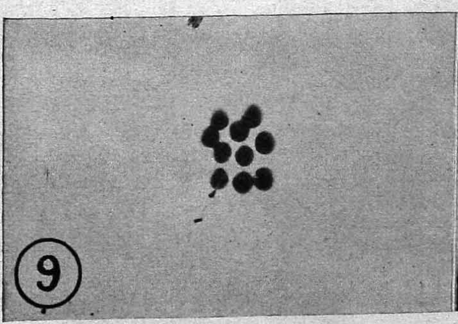

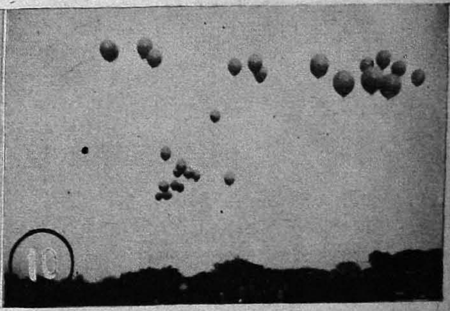

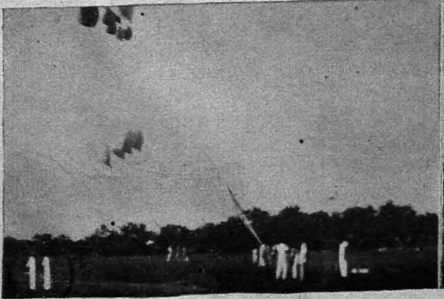

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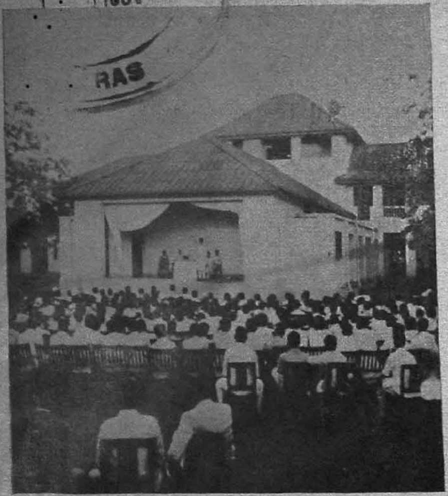
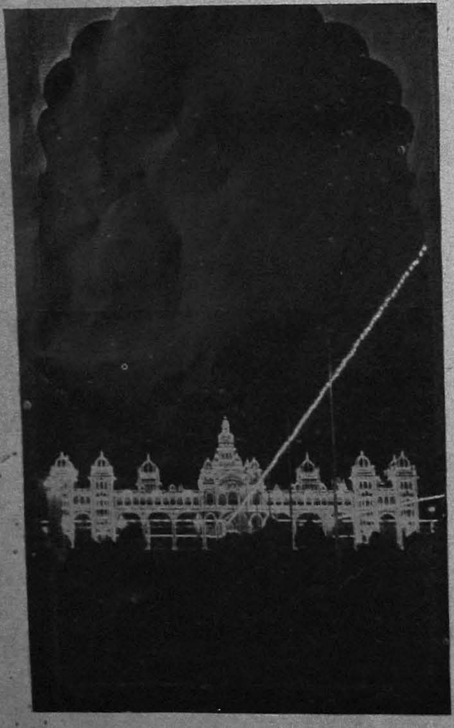
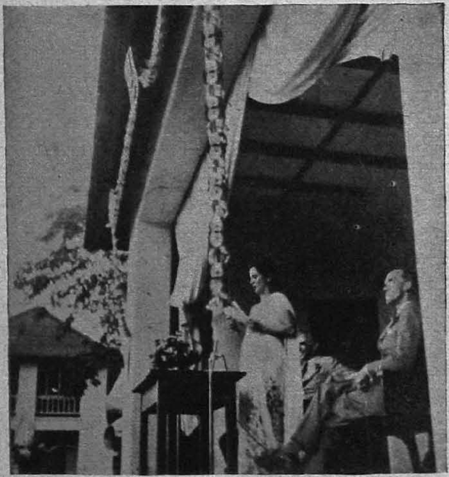


ST THOMAS'S HALL DAY
Dr Abdul Haq addressing the gathering

SELAIYUR HALL DAY
P. P. Kushalappa, the acting Principal and Mrs Batliwala during the Warden's speech



MAHARAJA'S PALACE, MYSORE, AT DASARA



MRS BATLIWALA SPEAKING AT SELAIYUR HALL DAY

Photos by B. Sripathi Rao

SOCIETIES

THE COLLEGE UNION

As stated in the previous report in the last issue of the College Magazine, a convention of students from all parts of India was held in Bombay in the second half of September 1950, for the purpose of forming a federation of all College Unions in India under the name of 'National Union of Students.' The Secretary of our College Union represented our College at the convention. But the convention unfortunately only showed that unity among students in India remains a dream yet to be realised. The sponsors of the convention are now working hard to quicken the formation of the National Union of Students and to banish from the student population of India the disunity that was found among them at the convention.

On Friday, October 27, Mr. S. K. Chettur, I.C.S., addressed the College Union. His speech on 'Is the Millennium Possible?' was thought-provoking and many questions were asked by enthusiastic members from among the audience. Mr. Chettur answered all the questions skilfully and with a tone of finality.

The highlight of the year's activities of the College Union was the intercollegiate oratorical competition for the award of the Gordon Matthews Rolling Cup. It was held on Wednesday, November 15, with Rev. J. R. Macphail in the chair. The following institutions sent their teams to take part in the debate: Law, Engineering, Pachaiyappa's, Presidency, Veterinary, Loyola, Ethiraj and Queen Mary's Colleges, M.I.T., and Madras Christian College. The proposition that "Equality as such is an impossibility and to talk of it between the sexes is an absurdity" was debated and naturally it gave rise to a very interesting and entertaining debate. We had a panel of three Judges having, as our Principal remarked on that occasion, international representation. They were Mrs Hagberg, Mrs Ammanna Raja and Dr Taylor. At the end of the debate Dr Taylor gave his views on the debate. Mrs Ammanna Raja announced the results and Mrs Hagberg gave away the prizes. The Madras Law College won the Gordon Matthews Rolling Cup. Mr A. J. Tauro of Law College won the First Prize, Mr K. Gopalan of Presidency the second prize and Miss Padmavathy Nair of Ethiraj College the special prize for the best lady speaker. The President concluded the function expressing his thanks to the judges and the competitors. It may also be remarked that the audience which had thronged into the hall behaved during the function in a gentlemanly manner.

Two days after the debate, on Friday 17th November, Miss Muriel Lester, a disciple of Gandhiji and world-famous champion of peace, addressed our union. She spoke on "A New Pattern in History."

On Thursday, November 23, our College Union met again to hear Dr T. M. P. Mahadevan on "Yoga in Indian Philosophy."

Mr V. V. Giri, formerly India's High Commissioner in Ceylon addressed our union on Thursday, February 1951. His speech on "Fundamental Rights" was well appreciated.

On Thursday, 15th February Mr V. Chakkarai Chettiar, President of the All India Trade Union Congress spoke to the members of the Union on "Trade Unionism in India."

We propose to have our valedictory meeting in the second half of February.

Mr A. S. Krishnamoorthy who was the Vice-President of our College Union for many years, left us in January to join government service. I take this opportunity to extend our best wishes to him. I also wish to welcome Mr Bennett Albert who has replaced Mr A. S. Krishnamoorthy.

And now as I conclude my report I wish to thank all the members of our College Union for their kind co-operation which

has been mainly responsible for the success of this year's activities.

V. R. NARAYANASWAMI,
Secretary.

WOMEN STUDENTS UNION

The activities of the Women Students' Union for the academic year 1950–51 began with a meeting which was held on August 4, 1950 at which Dr. E. D. Mason gave the inaugural address. A resolution of condolence was read in memory of S. Janaki of the Final Honours History Class of 1951 who passsed away on the 31st of July. Mrs G. C. Martin, our President, too spoke on the work done by the staff wives at the Welfare Centre. During the first term the women students were entertained to tea by the members of the Staff Wives Fellowship. After tea and games the staff wives put up a short sketch about the life of two women students at College.

The high light of the second term was the women student's Social and Dinner. Excitement ran high and preparations for the entertainment began early in the term. The great event took place on the 5th of November. All the heads of departments and their wives were invited as guests of the union for tea. Though the entertainment can in no way be compared to the performances in the other halls, the general verdict was that there was a marked improvement on last year's performance. We regret to note that a large number of our women students are still diffident to mount the stage. As a result the burden of entertainment was borne by a handful of students. We must particularly mention the work of Kamala Supramaniam who was responsible for organising the function. We specially thank Mrs Martin, our President, for all the help rendered by her and Mr G. C. Martin who helped us with the play.

We are very proud to mention that for the first time in the history of the Union we participated in the Tenniquoit Tournament organised by the University Union —even though we did not achieve any spectacular success. We hope that next year more women students will take an active interest in outdoor games and that Miss Velu, our able Hostel Warden, will continue to help us in our games.

An excursion to Mahabalipuram had to be cancelled owing to the poor response from the members.

The tea party to the members of the Staff Wives Fellowship was given at Guindy in order to give the staff wives a chance to visit the Hostel and enable them to forget their cares at Tambaram for a few hours. We are glad to note that many of the day-students attended the function and joined in the general fun and merriment.

Our activities for the year were brought to a close when we bid farewell to our seniors on February 20th and wished them good luck in their exams. After tea the report for the year was read and then a short speech was made by the President.

We take this opportunity to thank our President, Mrs. Martin, the members of the Committee, Deena Cherian, Padma Satya, Kamala Supramaniam, Arunthathy Kanagathungam, and Angela Rajamoni and all the women students for their help and cooperation during the past year. We also thank Mrs. Kibble, Warden of Women Students, who always willingly offered her services whenever we needed them.

We must also mention that since a women's Hostel has been established the need for a union is no longer felt. Hence forward all women students will be attached to the Women Students' Hostel.

M. ABRAHAM,
T. MANGALAM,
Joint. Secretaries.

CHRISTIAN-UNION

1. *President*—P. M. Thomas.
2. *General Secretary*—J. R. Ratnanayagam.
3. *Treasurer*—V. V. Mathew.
4. *Lady Representative*—Miss S. Viswasam.
5. *Bishop Heber Hall Secretary*—C. Christian.
6. *St. Thomas' Hall Secretary*—V. S. B. Asirvatham.

7. *Selaiyur Hall Secretary*—J. A. Chelliah.

8. *Non-Residents Secretary* — Michael John.

9. *S. V. M. U. Secretary*—M. Elia Peter.

10. *Sunday School Secretary*—S. Amirtham.

11. *Drama Group Secretary*—J. K. Jacob.

12. *R. Sq. Secretary*—John Sampath.

We have had comparatively few general-body meetings this year. At our first meeting for the year we had Bishop Pakenham-Walsh as the speaker and almost immediately after that we had our usual Freshers' Social at which Mr. C. S. Paul (General Secretary of the National S.C.M.) spoke. We tried to give the Freshers the best possible start by introducing them to all the activities of the S.C.M.

We have had a few foreign visitors this year. Mr. M. Fujita of the S.C.M. in Japan spent a morning with us. Mr. Kyaw Than of the S.C.M. in Burma spoke to us one night at compline in the Bishop Heber Chapel. Miss Mary Fox of the Australian S.C.M. and Miss Muriel Lester of international fame spoke at informal meetings of the S.C.M. on the Library terrace. Rev. Oliver Tomkins of the World Council of Churches spent an evening in Tambaram and addressed a general-body meeting of the S.C.M.

We were represented by eight members at the Prayer Conference and the entire committee was present at the Officers' Conference. The second term found us preparing for the Annual Provincial Conference and about sixty-five attended it from our College. Judging from reports made at the echo meetings after the Conference I have every reason to say that the Conference was a very valuable one for it toned down quite a number of our critics and it did certainly drive some enthusiasm into some of our members noted for their indifference.

Our College was represented by a delegation of nineteen at the Triennial Conference held in Hyderabad, during the Christmas Vacation. In the selection of the delegation the committee did make it a point to see that every section of the S.C.M.—S.V.M.U., Sunday School section, R. Sq. and Drama Group—was properly represented. As the Conference is being reported on elsewhere in this magazine I shall say no more about it here.

During the Week of Witness teams from our College visited a number of city colleges.

The Rural Service Squad has had a memorable year. The Annual Work Camp was held during the September Vacation during which a shed was constructed by the students attending the camp. Quite apart from the construction of this shed, which is at present being used for Leprosy work, the camp produced a small group passionately bent on Rural Service Work. They were infused with enthusiasm and energy that can seldom be equalled. Day by day as brick went on brick and as the structure gradually grew they saw a vision of their life vocation. The work must have been very hard, both exacting and exhausting and it was to be repaid by nothing save the satisfaction that it was being done for the benefit of the lepers in Pammal. It may not be out of place to mention here that this same group organised itself into a band of porters to earn money for their work. Though the little structure has nothing of architectural value about it, it will always stand, as John Sampath described it, as 'a monument of student endeavour.'

The Sunday School Section is seldom heard of and yet I have always felt that it is the pride of our Union. We have eighteen members teaching over two hundred and fifty children in nine centres. In this connection I must not fail to thank Mrs Devanesen for the very valuable service she has rendered us in conducting the preparation classes for the teachers. The work has gone on regularly all through this year.

The drama group has had a very active time again this year. During the first term 'Soldier of God' was produced twice and during the second term 'The Healing Stream' was also produced twice. At both the College performances voluntary collections were made and the proceeds were given to the Rural Service work and the

Sunday School work. 'Soldier of God' was also produced at the Triennial Conference in Hyderabad and was widely appreciated.

The Wednesday morning meetings of the S.V.M.U. have gone on regularly all through the year. Our Union was very poorly represented at both the S.V.M.U. camps. The Non-Residents have had their weekly meetings regularly too.

We have not been successful in tackling the problem of study. Study groups were organised at the beginning of the year in each Hall but none survived the second term.

At our Valedictory Service we will use a special order of service. Immediately after the service there will be the last committee meeting for the year at which we shall hand over to the committee for the next year and let me take this opportunity of wishing my successor and his colleagues the very best.

Before closing I must not fail to thank Rev. R. S. Macnicol and Mr C. Devanesen for all that they have done for us. They always knew our necessities before we asked for them and they have patiently endured many trials—myself not the least; and have sustained us with much counsel, encouragement and hospitality! I must also thank my colleagues for all the co-operation they have given me in my work this year.

Finally let us thank God for 'mercies past received,' for the year has been a good one and therefore I end with DEO GRATIAS.

J. R. RATNANAYAGAM,
General Secretary.

THE ENGLISH HONOURS ASSOCIATION

When the year was still young, the members of the Association met for the election of office-bearers. The following were elected—E. R. Vanajam and F. R. Stanley as secretaries, K. S. S. Sarma as student-chairman, Prof. G. C. Martin as patron, and G. S. Kailasam, Miss Mary Kutty, K. Ravi Varma and M. Krishnan Kutty as the class repesentatives.

Our first meeting was held on the 19th of July '50, when we listened to some of the poems of Wordsworth recorded for Columbia by Stephen Murray. The records were lent to us by the British Council, Madras, and we thank them for their sympathy and interest in the activities of the Association.

The Inaugural Address of the Association was delivered by Mr Gordon P. Hagberg, U.S. Information Officer on Thursday, the 17th of August '50 who gave an interesting talk on 'A Free Press and the Readers' Responsibility,' the gist of which was given to readers in the previous issue of the College Magazine.

In the second term, we had recordings from the Prologue to the Canterbury Tales, lent to the Association by the British Council, Madras. Mr Macnicol presided on the occasion, and introduced the characters.

We are missing the jovial Dr Boyd, who is away on furlough. But we are glad to know that he will be back among us this year. Mr Martin has come back from abroad, and, as patron, has contributed a a great deal towards the smooth functioning of the Association. Mr Macnicol, is leaving us this summer on furlough. We wish him a bright holiday in Scotland!

We were at home to the members of the Presidency College English Honours Association on the 8th of February '51 on which occasion, the members of both Associations had tea together, and then a discussion. 'The tragedy of XXth century is the neglect of the Humanities.' S. Sivaraman, F. R. Stanley, T. B. Ramamurthy and V. R. Narayanaswamy were the speakers from our Association. The debate was won by us, by a single vote.

As for the seniors, our best wishes, both for their success, in the coming examinations, and in life, go with them.

F. R. STANLEY,
E. R. VANAJAM,
Secretaries.

SANSKRIT ASSOCIATION

The general body meeting took place on 13th July with Mr U. Venkatakrishna Rao,

M.A., in the chair. The following office-bearers were elected for this academic year.
K. S. Vijayaraghavan—Secretary.

Class representatives:

Class IV—V. K. V. Raja.
Class III—S. Sadagopan.
Class II—K. N. Kalyanasundaram.
Class I—A. R. Sridharan
Other classes—V. Kamesh.

The inaugural address was delivered by Prof. P. A. Subramania Iyer, M.A., (Retired Professor, Annamalai University) on 11th August. He referred to the fact that special chairs are instituted for Sanskrit in foreign countries. He brought to our notice the keen enthusiasm of the foreigners and their zealous pursuit of Sanskrit. He appealed to us to strive hard to revive the divine language.

The fourth meeting was held on the 7th January when Mr N. G. Narahari Rao, M.A., M. LITT., Curator, Adyar Library, addressed the students. He gave an elaborate description of the works of Magha.

At that time Mr. Monomi, Secretary, Theosophical Society, Belgium, was also present, and spoke a few words about the enthusiasm thatis being shown towards Sanskrit by foreigners.

The Recitation contest was conducted for the Pennathur Visalakshi Ammal Rolling Cup on Thursday the 1st February in our college. The cup was given to the Stella Maris College.

Dr R. Nagaraju Sarma delivered the valedictory address on Educational Ideals in Ancient India on 16th February.

Thanks are due to our president who has given his valuable advice in conducting the meetings.

K. S. VIJAYARAGHAVAN,
Secretary.

HINDI PREMI MANDALI, 1950—51

A meeting of the above association was held with Mr A. C. Kamakshi Rao, B.A., B.O.L., in the chair, when the following office bearers were elected.

President—Mr A. C. Kamakshi Rao, B.A., B.O.L.
Student Chairman—M. Mathews.
Secretaries—
(Non Resident) S. Rajaram Mohan.
(Resident) D. Hans Raj.

The inaugural address of the above association was delivered by Mr M. Satyanarayan, Member of the Indian Parliament, and The Pradhan Mantri of Hindi Prachar Sabha. Mr A. C. Kamakshi Rao presided.

The guests were cordially received by the Hindi students. After tea the meeting began with the 'Vande Matharam' song. The chairman welcomed the guests and both the speakers gave very interesting speeches touching on the importance of the Hindi language as a National Tongue.

The chairman thanked the guests in his address and at the close of the meeting the Secretary of the association gave a vote of thanks on behalf of the students.

Then under the auspices of the association a debate was held on 'The Food Problem of India'. Mr A. C. Kamakshi Rao, B.A., B.O.L. presided. Many students took part in the debate.

D. HANS RAJ,
Resident Secretary.

KARNATAKA BHASHABHIVARDHINI SANGHA

The Sangha at the beginning of the second term leapt into progress, full of active spirit and enthusiasm, and met with unexpected success. We began on October 10th with an interesting and critical speech by one of the veteran political leaders of Karnataka, Sri K. R. Karanth (M.L.A.). He spoke on 'The present politics of Karnataka.' The meeting was presided over by Sri R. B. Joshi, Lecturer in Philosophy.

Second was a debate on 'The Ancient and the Modern: which is more conducive to human progress?' Many of our students participated; and it was presided over by Sri K. Raghavendra Rao.

The next meeting on November 4th was of great significance and unexpected grandeur when we were fortunate enough to have in our midst, the eminent poet, learned

scholar and great thinker of Karnataka, Sri D. R. Bendre, M.A. We heard from him a very learned, instructive, comprehensive and critical speech on 'The eight-fold culture of Karnataka' (Karnataka Ashtanga Samkriti). The meeting was presided over by our beloved Kannada Pandit Sri K. Narasinga Rao, and was largely attended.

Next we had a critical survey of 'The popular literature in Kannada' by Sri C. K. Tirunnalesh on November 16th. Sri. K. R. Karat was in the chair. That was the last—but not least—meeting we had in the course of second term.

It is regrettable to say that the Sangha was rather slow and lacking in its progress. This was not at all due to the slackening spirit of the members but due to the unexpected inconveniences and untimely illness of the appointed speakers that made us all feel disappointed more than once.

On the whole, our Sangha has really, without a shadow of doubt, witnessed a greater progress and prosperity in its career, this year, than it did in its previous history.

The valedictory address was delivered by Sri Tekur Subrahmanyam, B.A., B.L., at a meeting on 15-2-51 which was presided over by Sri T. Hanumanthappa, B.A. (Hons.); B.L.

This success is, no doubt, mainly due to the kind and proper guidance of our beloved Kannada Pandit, Sri K. Narasinga Rao, and the stimulus and spirit-provoking helpful cooperation of all the members especially the representatives of the respective Halls and Villas, for which act of goodness I extend my heart-felt thanks.

N. M. KOTRA BASAVIAH SOGI,
Secretary.

MALAYALEE ASSOCIATION

The activities of the second term began with a meeting held on October 25, 1950, over which Mr Nandan Menon, Vice-Chancellor of Travancore University presided. Mr. Panampally Govinda Menon, the Education Minister of Travancore-Cochin who was the main speaker, dwelt at length on the reforms that have taken place in his university after his assumption of office. We are very grateful to our principal Rev. J. R. Macphail, who invited both the distinguished guests to a party.

The association held an elocution competition which was keenly contested. We congratulate Ashtamoorthy Nambudiripad and K. Ravindra Varma on winning the first and second prizes.

We are deeply grieved to record the sad demise of the Malayalam tutor, Vidwan P. R. Varier, during the Christmas vacation. He was a young man of real literary talents, and his passing away is a loss to Malayalam literary world.

Towards the beginning of the third term a meeting was held under the presidentship of Mr. K. M. George, M.A., when Dr. P. K. Narayana Pillai, M.A., Ph.D. spoke on the need to organise a Post-graduate and Research Institute as a memorial to the sage and poet Ezhuttechan. V. J. Mathew and P. K. Mathew spoke on the great services rendered to the students by the late P. R. Varier and a condolence resolution was passed.

The next meeting was presided over by Vidwan P. A. Varier, B.O.L. Mr. Ponkunnam Varkey, the reputed short story writer, spoke emphasising the need for progressive literature to depict life with all its problems.

In spite of the increasing price of paper and many other difficulties, we are proud to say that we have been able to publish our Malayalam annual 'Kairalee kumari.' We take this opportunity to thank all the old students who have been kind enough to send us articles. Special mention must be made of Mr. A. Balakrishna Pillai, who though not an old student, kindly agreed to our request for an article.

We express our sense of gratitude to our President and Mr. K. M. George, M.A., who, always willing and considerate, gave us valuable advice and help on many an occasion. We are grateful to Joy Jacobs, our treasurer, and also to the committee members. We cannot forget Mr. Titus Varghese, M.A., who is about to leave us and whose departure surely will be viewed with sadness and heaviness of heart by all. He has been a constant source of help for us.

We wish the senior members all success in their ensuing examinations.

DANIEL N. VARGHESE,
K. SANKARANKUTTY NAIR,
Secretaries.

MATHEMATICS ASSOCIATION.

Dr Vijayaraghavan, a mathematician of international repute, delivered the inaugural address of our association on the Theory of Algebraic Numbers. He very kindly prepared cyclostyled papers containing various *important theorems in his* lecture and circulated them among the students.

One of the most prominent aspects of our association was the reading of papers on important subjects by students. S. Ramakrishnan contributed a fair share, in this connection, by reading a paper on the theory of multiplicative functions at two successive meetings. He gave a lecture, not a mere reading. Next M. A. Sundaram's paper on the theory of partitions was heard with rapt attention.

The unexpected death of one of the great Indian mathematicians, Dr S. S. Pillai, was a blow to us all. On hearing the news of his sudden death an extraordinary meeting was called and a condolence resolution was moved by Mr A. S. Krishnamoorthy and passed. Dr Vijayaraghavan, who happened to be present on the occasion, threw some light on the life and works of Dr S. S. Pillai. A message, expressing our sympathy, was also conveyed to Mrs S. S. Pillai.

The beginning of the last term saw one of our lecturers, Mr A. S. Krishnamoothy, leaving the college to assume a new office in Government service. A farewell meeting was held and glowing tributes were paid to Mr A. S. Krishnamoorthy.

Dr Narasinga Rao kindly agreed to deliver the valedictory address. A group photo of the association was also taken.

H. GOPALAKRISHNAN,
Secretary.

PHYSICS ASSOCIATION 1950-51

It has been a very successful year; for though the number of meetings was small, they were well attended and appreciated.

The activities for the year started with an address by Dr Sen of the Meteorological Service on Molecular structure. The second term saw a great impetus being given to science and its study by the balloon-flights conducted by the cosmic-ray research party. We had the benefit of a lecture by the leader of the group, Dr Peters. Also in the second term, we had a series of instructive lectures by Dr Srinivasan on "Scattering of light."

This term we have had an interesting lecture on "Time and Space" by Dr Ross, the visiting Australian scientist. We hope to have one or two more meetings.

The year has been successful. And we wish to record here our gratitude to our president Dr Thangaraj for the guidance and care and also to the members for the keen interest they have evinced.

T. N. SESHAN,
T. P. ARAVINDAKSHA MENON,
Secretaries.

ASTRONOMICAL SOCIETY.

This society was a phenomenal success this year, judged both by the number of observations made, and the number of members who attended. During the first term, not many observations could be made owing to the cloudy weather. We could observe Jupiter with its satellites, and the moon, during intervals of clear sky. But we had many more meetings during the second term. We observed an interesting event, namely, a satellite of Jupiter casting its shadow on Jupiter. We observed also the moon, and the two nebulae in the constellations of Orion and Andromeda. A notable event was the observation through the telescope of the balloons sent up by the cosmic ray experts, Drs Peter and Taylor. During the last term we had a few more meetings, when we observed Venus, Mars and Jupiter, and the zodiacal light. On 7th February, we were fortunate in getting

both Jupiter and Mars in the field of the telescope at once, at the time of their conjunction; and this rare phenomenon was observed by a very large gathering. We hope to have a few more observations before we finally close for the year, especially of Saturn, which is in opposition on March 20th.

Our thanks are due to Dr and Mrs Kibble for the very great interest they took in the society and their kind guidance.

M. A. SUNDARAM,
Secretary.

NATURAL HISTORY SOCIETY

President—Dr J. P. Joshua, M.A., Ph.D.
Vice-President—Mr. Giles Lal, B.Sc. (Hons.)
Secretary—H. P. Chandrashekara Shetty IV B.Sc. (Hons).
Treasurer—H. M. Silas, IV B.Sc.

At the beginning of the current academic year, the executive committee began its activities in right earnest. On the 8th of August 1950, the executive committee met for the first time and chalked out a definite programme for the year.

The inaugural address was delivered by Dr. Narayana Rao, Director of King Institute, Guindy, on the 17th of August, 1950. Dr J. P. Joshua, Professor of Zoology, presided The day's guest spoke on '*Natural Science and its relationship to Bacteriology.*' He gave an expert opinion as to the unravelling of many of the intricate problems connected with Bacteriology, its economic importance and pleaded for the free coordination of the various allied sciences.

On the 25th of August a party of about forty naturalists was taken to the Madras Harbour under the auspices of the Natural History Society. There we did some good plankton collection. Again on the 2nd of September, under the auspices of this Society, another party of Naturalists was taken to see the King Institute, Guindy, where, I must say, we added a lot more to our knowledge and we are indeed grateful to the authorities, concerned who did take pains to give us detailed explanations, sometimes with actual experiments on the various sections of the Institute.

During the course of the second term, we were fortunate in getting Dr. I. M. Azizuddin, B.A., G.M.V.C., B.V.Sc., Ph.D. (Edin.), Principal, Madras Veterinary College, to give us a learned discourse on '*Animal Husbandry*', during the course of which he exhorted Zoology graduates to take up Veterinary Science. Dr. Joshua presided.

Of course, we had our annual excursion to *Krusadai* and the nearby islands and shores during the last week of July and it is needless to stress here the immense utility of it, in spite of the almost unbearable hardships we had to undergo. During the last week of October, there was an entomological excursion for fourth and final (Honours) to a place in Hassan district of Mysore State. Again, there were a series of other excursions too, such as those to Portonovo, Mahabalipuram and Pulicat.

On the 24th of January, 1951, the Secretary of this Society was sent as the representative of the College Science Associations to the '*Science Lovers' Conference*'. held in Government Arts College Madras.

The valedictory meeting of the society came off on the 5th of February, 1951, when Dr. Ananthanarayana Iyer B.A., M.B.,B.S., M.Sc., Principal, Stanley Medical College, Madras, honoured us with a brilliant lecture on 'LIFE, FULLER LIFE'. The President of the Society presided.

I take this opportunity to extend my heartfelt thanks, to the President and Vice-President for their sincere and able guidance. I shall be failing in my duty if I do not thank all the members of the executive committee and those of the society for their unstinted cooperation and encouragement.

H. P. CHANDRASHEKARA SHETTY,
Secretary.

RADIO CLUB.

Early in the second term there was a change of office bearers. Dr P. S. Srinivasan became the President and Sri Chandra Daniel, the vice-president. Sri

C. S. Subramanyam was nominated as Asst. Secretary.

Later, Dr H. J. Taylor of the Tata Institute of Fundamental Research and of Wilson College, Bombay, addressed the Club on "Electronic Appliances in Cosmic Ray Research".

Dr P. S. Srinivasan also gave a series of instructive lectures on "Straight Radio Receiver."

On the 12th of January 1951 Sri J. K. Murthy of the Provincial Broadcasting System and the Madras Institute of Technology, gave a humorous talk on "Printed Circuits", (reported elsewhere in this Magazine).

Led by our vice-president we visited the AIR Broadcasting Station at Egmore on the 25th November 1950.

This term we had to say good-bye to our vice-president, Sri Chandra Daniel, who has joined the Indian Meteorological Department. We wish him all success.

The valedictory meeting was held on 29th of January. Sri Joga Rao BSC. (HONS) M.I.R.E., (Chief Engineer, Provincial Broadcasting System, Madras) gave a talk on 'Radio Communication'. This was followed by a tea party and a group photograph. A short film on 'Radio-location' was also shown.

We avail ourselves of this opportunity to thank our well-wishers and especially Dr M. A. Thangaraj, the Professor of Physics for the interest he has taken in the Club. We are grateful to our President Dr. P. S. Srinivasan for his able guidance all through the year.

E. C. GEORGE,

C. S. SUBRAMANYAM.

THE QUIZ LEAGUE.

President. Rev. R. S. Macnicol.

Captain: R. Dwarakanath. iv Hons.; Br iv.

It is to be noted with pride that 'The League' has done signal service in the field of 'QUIZ' this year as well. 'The League' arranged QUIZZES in the college itself and the students participated in these quite well. It has enabled the College to create the unique record of being the winner in two consecutive years (*49–50; 50–51*). In this connection it will be remembered that 'The League' started functioning in August '49.

Our Termly scores are as follows:—

First Term: 16 points; Second Term: 6½ points;

Third Term (till 5-2-51): 6 points. Total 28½ points.

'The League' acknowledges with gratitude the cheerful assistance rendered to it by Shri T. K. Thomas, M.A., in selecting the Teams. Mention should also be made of the outstanding contributions to the scoring of points made by the following students:—

E. L. Samuels of the Fourth Economics Honours.

M. Padmanabhan of the Final Maths Honours.

T. Jagadish Rao of the Senior Intermediate. And my modesty *forbids* any mention of my own achievements.

My especial thanks are due to the President for his timely advice, energetic encouragement and able guidance.

I am sure we will really be missing our favourite QUIZMASTER (I mean our President) next year for he is to go on furlough. *Bon voyage*!

6–2–51

R. DWARAKANATH,
Captain.

ATHLETICS

FOOTBALL

At the beginning of the second term, our Captain P. S. George left us to join the Air Force Academy at Jodhpur. In all our matches his absence was greatly felt. K. C. Cheriyan was appointed Captain in his place.

C. R. D. James, our star forward, and K. R. Mekhri, our centre forward, got selected to represent the University. Our congratulations to them.

During the two terms under review a number of practice matches were played. Though we were defeated once or twice, the struggle we put up was quite commendable considering the strength of the opposing teams. We drew one and lost two of our three matches against the I.A.F., but managed a decisive victory of 5-1 over the Chromco Football Club.

In the Wilson Cup Knock-Out Tournament our performance was on the whole satisfactory. In the first match against Presidency College we won by two goals to nil. Govindarajalu the reliable left extreme, did the scoring business, while C. R. D. James helped him a great deal in the left inside position. We defeated the Stanley Medical College in the Semi-Finals by two goals to nil. In the finals, however, our luck was against us and we lost to Loyola. Our opponents had a strong team and in spite of the splendid team work in this match we were unable to stop their aggressive forwards.

C. R. D. James, the University left inner, has done a wonderful job in helping the team to go up the ladder. He plays a nice game of football and the team always looked to him as their greatest help. Charles Verghese, our right extreme, always played a steady, reliable game. K. R. Mekhri, our star centre forward, is one of our few players who has got very good control over the ball and he used this asset in all the matches he played. Again, Babu Abraham, our right inside proved to be an aggressive forward with his cool and clever game. Our left extreme Govindarajalu, in spite of his position, showed himself to be a good scorer in our knock-out matches. His is a game which is splendid and quick. Our defence line showed itself to be a formidable one. Our success in the two knock-out matches was mainly due to the excellent form in which N. K. Devaraj kept the pivot position of centre-half. Our right-half, C. John, is a wily tackler and has played a good part in the team's splendid performance. A new addition to the team was J. Chitharanjan who plays good football in the left half. C. K. John, our full back, was our tower of strength. He plays a wonderful game in the deep defence. Our custodian Krishnan is another player who has earned a good reputation. In fact we did not lose much in Kanagalingam's absence. Krishnan is a player who, while in action, seems to have more joints than any other man. He dives and curves in incredible form. K. V. Oomen, G. Srinivasan, J. Tharyan, G. Alexander, and V. I. Ittycheria are other players who represented the College in many matches. I am grateful to them for their excellent performances.

This report would be sadly inadequate if I do not mention the co-operation and encouragement given to us by our principal Rev. J. R. Macphail, Mr C. A. Abraham, and Mr A. T. Balraj. My heartfelt thanks to them.

K. C. Cheriyan,
Captain.

BASKET BALL

The second term began with a few friendly matches. And the last of the League matches we played was against the Loyola College; there was a close fight from the beginning but towards the close of play they gained a lead of three points and won the match. That was the end of our

League matches for the season. We played six matches in the League in our zone of which we won four matches and lost two against Stanley Medicals and Loyola College, the former by two and the latter by three. In all the League matches we kept up a good standard. But all our League matches were played in the 'away' grounds, and that was a great disadvantage to our players who could have produced more favourable results in the matches which we so 'narrowly' lost, if they had been played on the home ground.

Our knock-out matches began with a match against the Engineering College which we won with a wide margin. Next we had a match against Pachaiappa's College which too we won with a wide difference in the score. This brought us to the semi-finals which we played against the Law College in their grounds. Our players put up a very tough fight. Our forwards Jacob George, Johnson Daniel, and Chandrapandiyan scored faster than ever before. About five minutes before the close of the play, we were leading but in the last few minutes they gained a lead and we lost the match, 38–35. It may also be remarked that the Law College who beat us in the semi-finals were the winners of the knock-out tournament.

I must thank all the players for their hearty cooperation. We are extremely thankful to our physical director Mr C. A. Abraham and President Dr M. A. Thangaraj who took a keen interest in the game and whose guidance was mainly responsible for all the success we had this year.

In the Inter-Hall Basket-Ball match, on 21st February, St. Thomas's Hall won by the record score of 76–8 against Bishop Heber Hall. The previous highest score was 64.

G. John,
Basket-Ball Captain.

INTER-COLLEGIATE SPORTS.

At the Inter-collegiate Sports on Pachaiyappa's College ground, on February 16th and 17th, the Championship Shield was won by Madras Christian College, with 52 points, Loyola College being second with 46 points.

A. S. Chandrapandian was first in all his three events: javelin throw, shot put and discus throw, making a discus throw of over 102 feet, several feet better than his college record set up a week before; J. B. Joseph was first in the 100 metres, and A. D. Rasaiah in the 110 metres hurdles. We also won the 4×100 metres relay race.

THE COMMEMORATION DAY SPORTS

By Our Special Representative

It being a foregone conclusion that Bishop Heber Hall would retain the Athletics Shield for the second year running, much of the excitement that usually prevails among the students on this day, was missing. This year, much of the excitement centred round the question as to who would get the second place. This lack of excitement, however, did not in any way detract from the usual colour of this occasion.

Besides the Hon'ble Mr Justice P. V. Rajamannar, who presided and gave away the certificates, a number of distinguished old students were present. Among these were Mr. K. Kuruvila Jacob, Headmaster of our School. Messrs. Sanjiva Kamath, Kumararaj Joseph whose brother J. B. Joseph was running, Balu Alaganan, Jayasingh Thomas, and N. Kannaiyaram.

Two records were broken—A. S. Chandrapandian of St. Thomas's Hall, with a splendid discus throw of 99 feet 3 inches, breaking his own record of 92 feet 5½ inches set up last year (this athlete seems to improve with every attempt), and S. D. D. Thomas of Heber Hall, with a fine effort of 4 minutes 32·9 secs. in the 1500 metres race, bettering the previous record of 4 minutes 36 seconds held by R. J. Rajasekhar since 1947.

The 100 metres race was marred by the uncertain and erratic behaviour of Mr. C. A. Abraham's pistol, which resulted in a number of false starts. In such races this can be very detrimental to the nerves

of the competitors. The finish of this race as well as the 200 metres race was a close affair. Another exciting event was the 4×100 metres relay race, in which A. S. Chandrapandian, in spite of a muscle catch, put in a splendid sprint to win the relay for his Hall. The Sack Race, Old Boy's Race, and the Pickers' and Markers' races offered an interesting and amusing diversion.

Among the outstanding athletes of the day were J. B. Joseph of Heber, A. S. Chandrapandian of St. Thomas's and A. R. Rasaiah of Selaiyur. It may be said without fear of contradiction that J.B. Joseph, with his victories in the 100, 200, and 400 metres flat races, was the athlete of the day. Chandrapandian we have already mentioned. Rasaiah from Ceylon distinguished himself in the 110 metres hurdles and Pole Vault, in which latter event, he made an unsuccessful attempt to improve on the record of 10 feet 6¼ inches

Towards the end, excitement ran high as to who would win the second place. After a tough fight, Selaiyur won this coveted place by one point.

Below are given the results :—

Championship events :

110 Metres Hurdles	...	A. R. Rasaiah (S)—1—Time: 17·3 secs. C. W. K. Bonney (H)—2.
400 „ „	...	C. John (S)—1—Time: 1 min. 4·6 secs. E. Royan (H)—2.
800 Metres race	...	S. D. D. Thomas (H)—1—Time : 2 min. 9·9 secs. S. P. Selvaraj (H)—2.
Javelin Throw	...	A. S. Chandrapandian (T)—1—Dist. 137 ft. 2 in. V. Swaminathan (T)—2.
Hammer Throw	...	P. G. Verghese (H)—1—Dist : 59 ft. 8 in. C. W. K. Bonney (H)—2.
Shot-put	...	A. S. Chandrapandian (T) —1—Dist : 35 ft. 1 in. C. Philip (H)—2.
Pole-vault	...	A. R. Rasaiah (S)—1—Height : 10 ft. C. R. D. James (S)—2.
100 metres	...	J. B. Joseph (H)—1—Time : 11·8 secs. C. K. John (T)—2.
Long Jump	...	Jeyaraj Theophilus (H)—1—Dist : 20 ft. 7¾ in. Karunakaran Pillai (S)—2.
400 metres	...	J. B. Joseph (H)—1—Time : 53·7 secs. C. John (S)—2.
Discus throw	...	A. S. Chandrapandian (T)—1—Dist : 99 ft. 3 in. P. G. Verghese (H)—2. (New Record)
Hop Step and Jump	...	F. C. Fewkes (H)—1—Dist : 42 ft. 3 in. P. V. Purushotham (S)—2.
200 metres	...	J. B. Joseph (H)—1—Time : 24·2 secs. K. V. Oomen (S)—2.
High Jump	...	G. E. S. Alfred (H)—1—Height : 5 ft. 6 in. A. R. Rasaiah (S)—2.
200 Metres Hurdles	...	F. C. Fewkes (H)—1—Time : 29·4 secs. V. Mohan Chander (T)—2.
1500 Metres race	...	S. D. D. Thomas (H)—Time : 4 min. 32·9 secs. (New Record) S. P. Selvaraj (H).
4×100 Metres Relay	...	St. Thomas's Hall (A)—1—Time : 47·2 secs Bishop Heber Hall (A)—2. Selaiyur (A)—3.

4×400 Metres Relay ... { Bishop Heber (A)—1—Time : 3 min. 48·4 secs.
Selaiyur — 2.
Bishop Heber (B)—3. }

Total points :

Bishop Heber Hall (1)—127.
Selaiyur Hall (2)—69.
St. Thomas's Hall (3)—68.

Non-Championship events:

1. Old Boys' Race ... { V. Easau (H)—1. George Thomas (H)—2. }
2. Sack Race ... { V. Mohan Chander (T)—1. C. P. Rowland (S)—2. }
3. 4×100 Metres Inter-School Relay ... { Christian College High School—1—Time: 48 sec. (New Record) St. Mary's School—2. Doveton Corrie School—3. }

The time 48 seconds was a new record beating the previous one held by St. Mary's School.

Photographs facing page 84.

COLLEGE MAGAZINES RECEIVED

The Madras Medical College Magazine, vol. xix. October, 1950.
The Maharaja's College Magazine, Ernakulam, November, 1950.
The Kumbakonam Government College Magazine, November, 1950.
The Scottish Church College Magazine, Calcutta, December, 1950.
The Zamorin's College Magazine, Calicut, December, 1950.
The Magazine of Saltley College, Birmingham, *Centenary Issue*, Dec., 1950.
The Sunflower, Women's Christian College, Madras, March 1950.

COLLEGE SERVICE

LIST OF PREACHERS IN THE SECOND TERM

October	1		Mr. S. P. Adinarayan
,,	8		Rev. G. Paul David
,,	15		Rev. T. G. Koshy, Professor, Osmania College, Kurnool
,,	22		Rev. R. S. Macnicol
,,	29		Dr. H. J. Taylor, Wilson College and Tata Institute, Bombay
November	5		Rev. D. Chellappa, Principal, St. Paul's High School, Vepery
,,	12		Rev. G. C. Martin
,,	19		Rev. W. A. Partridge, Meston Training College
,,	26		Mr Noble Rajamoni, Tambaram
December	3	7-30 a.m	Holy Communion. Preacher, Rev. R. S. Macnicol
		6. p.m.	Christmas service : Rev. J. R. Macphail

LIST OF PREACHERS IN THE THIRD TERM

January	7		Mr C. D. S. Devanesen
,,	14		Rev. Dr J. C. W. Dougall, Foreign Mission Secretary of the Church of Scotland
,,	21		Rev. J. R. Macphail
,,	28		Rev. V. M. Thomas
February	4		Rev. D. Thambuswamy, Principal, Kellet High School
,,	11		Dr M. A. Thangaraj
,,	18		Rev. G. Paul David
,,	25		Mr M. J. Sargunam, Head Master, Union High School, Coimbatore
March	4	7-30 a.m.	Holy Communion. Preacher, Rev. G. C. Martin
		6 p.m.	Rev. R. S. Macnicol

Services will continue to the end of March.

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